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ABSTRACT

This case study provides information on the formal and informal technical and vocational education systems operating within the United Kingdom. It is intended to assist policymakers, planners, administrators, and experts in technical and vocational education. Part I provides basic information on the country and its economy with special emphasis on employment and changing needs. Part II deals in some detail with the educational system in the United Kingdom and discusses the role played by the government, the private sector, and the local educational authorities as well as the various educational councils and the institutions in the formal and higher education system where emphasis is placed on technical and vocational education. Part III is devoted to the organization of productive work in technical and vocational education in the United Kingdom in both the formal and nonformal systems. A list of addresses of bodies concerned with technical and vocational education in the United Kingdom and a bibliography follow. Five annexes provide diagrammatic presentations of the educational system and its administrative structure as well as three examples of workshops and laboratories, four examples of practical student work projects, and two examples of curriculum outlines. (YLB)

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Studies in Technical and Vocational Education

1. Developments in Commercial Education (1983, English)

2. The Organisation of Productive Work in Secondary Technical and Vocational Education in the United Kingdom (1983, English)

CE

# THE ORGANISATION OF PRODUCTIVE WORK

# IN SECONDARY TECHNICAL AND VOCATIONAL EDUCATION

# IN THE UNITED KINGDOM

Prepared for Unesco by:

Janet Elliott
London
August 1983

ED-84/WS/49

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# PREFACE

The present document is the second in a new series, "Studies in Technical and Vocational Education". These studies are based on a Unesco policy instrument, the Revised Recommendation concerning Technical and Vocational Education, which was adopted by the General Conference at its eighteenth session in November 1974. Furthermore, they are in conformity with Approved Programmes 19 C/5, 20 C/5 and 21 C/5, which indicated that a number of guides, studies and publications in the field of technical and vocational education would be reproduced. The studies are intended to assist policy-makers, planners, administrators and experts in technical and vocational education. They reflect Unesco's concern with fostering an effective exchange of experiences and ideas in this field as well as Member States' efforts in promoting the implementation of the Revised Recommendation.

The studies, which were prepared under contract for Unesco, should be considered as information documents that require continual revision and updating. A list of the studies appears on the inside of the front cover of this document.

We wish to express our appreciation to all those who participated in preparing this study and hope that it will provide its readers with information useful to them in the promotion and development of technical and vocational education.

The views expressed in this study are those of the individual(s) concerned with its preparation and do not necessarily reflect those of Unesco. The designations employed and the presentation of the material do not imply the expression of any opinion whatsoever on the part of the Unesco Secretariat concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

## AUTHOR'S NOTE

This case study has been prepared as one of the series on individual countries which is being commissioned by Unesco in order to provide information which will be studied, analysed and disseminated to other interested Member States.

The guidelines request information on both the formal and informal systems operating in respect of each country included in those surveyed. Within the timescale and resources available for the case study I have made every reasonable effort to provide accurate and up-to-date information on the systems currently operating within the United Kingdom. However, the U.K. position is both extremely complex and not fully documented, and it has not been possible to make the study fully comprehensive nor to carry out surveys to obtain from each potential source first hand detailed information. I have therefore relied on a selection of published sources which have been supplemented by correspondence and personal and telephone interviews. I have tried as far as practicable to identify examples of innovatory practice which might reasonably serve as a model or provide ideas for adaptation in other countries. I have included a list of names and addresses of individual organisations from which further relevant details are likely to be available.

Janet Elliott
London
August 1983

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## INTRODUCTION

This study was undertaken by Mrs. Janet Elliott, Deputy Chief Officer of the Business and Technician Education Council, on behalf of Unesco under contract no. 515.031.3. It is one of the studies Unesco is preparing on the organisation of productive work in technical and vocational education, in conformity with paragraph 1368 of Unesco's Approved Programme and Budget for 1981-83, document 21 C/5.

The objective of these studies is the identification and dissemination of information on innovative methods and materials for the improvement of technical and vocational education within the framework of the Unesco Revised Recommendation concerning Technical and Vocational Education, adopted by the General Conference in 1974. The studies under this title have been written according to guidelines prepared by Unesco with a view to facilitating the comparison of different approaches to the organisation of productive work in the light of various educational philosophies.

The study is comprised of three parts and five annexes, a bibliography and references as well as a list of addresses of bodies concerned with technical and vocational education in the United Kingdom. Part I provides basic information on the country with special emphasis on employment and changing needs. Part II deals in some detail with the educational system in the United Kingdom and discusses the role played by the Government, the private sector and the local educational authorities as well as the various educational councils and the institutions in the formal and higher education system where emphasis is placed on technical and vocational education. Part III is devoted to the organisation of productive work in technical and vocational education in the United Kingdom in both the formal and non-formal

systems. The annexes provide diagrammatic presentations of the education system and its administrative structure as well as four examples of typical practical work projects.

Further information on aspects of this study can be obtained from sources in the United Kingdom referred to in the list of addresses and the bibliography and references.

## PART I : BASIC INFORMATION ON THE U.K. ECONOMY

### Statistics of Population and Workforce

| | |
|---|---|
| Total Population : | 55.95 million (1979 mid-year projection) |
| Total Working Population : | 26.07 million (1981) |
| Number of Unemployed : | 3,231,720 (official figures as at August 1983). The total included 327,000 out of a total of 650,000 young people leaving school in July 1983 at the end of the 1982-83 school year |
| Rate of Increase of Unemployment : | 0.5% (approximately) |
| GDP : | 211,792 million pounds (1981) |

### Major Economic Sectors

The Annual Abstract of Statistics produced by the U.K. Central Statistical Office (1983) gives the following distribution of the working population among the major economic sectors and the contribution of each industry in the U.K. to the gross domestic product (before providing for depreciation but after providing for stock appreciation):

| | % of Pop. Working | Contribution to GDP £ m |
|---|---|---|
| Agriculture, Forestry and Fish | 1.4 | 4,867 |
| Petroleum and Natural Gas | 0.14 | 11,972 |
| Other Mining and Quarrying (excluding petroleum and gas) | 1.28 | 3,455 |
| Manufacturing | 22.90 | 49,916 |
| Construction | 4.34 | 13,545 |
| Gas, Electricity, Water | 1.30 | 6,670 |
| Transport and Communication | 5.52 | 10,953 |
| Distributive Trades | 10.11 | 5,838 |
| Insurance, Banking, Finance and Business Services | 4.73 | 20,088 |
| Professional and Scientific Services | 14.17 | 28,467 |
| Miscellaneous Services | 9.26 | 20,057 |
| Public Administration and Defence (excluding Forces) | 6.06 | 15,988 |

From these figures it can be seen that the U.K. is largely dependent economically on secondary and tertiary industries. The number of people employed in all the U.K.'s traditional manufacturing industries is declining. This has partly been due to the decrease in home and export demand for some products which have traditionally been major sources of income, partly to the introduction of new technology and the streamlining of industrial operations and partly to the worldwide economic recession.

Employment Forecasts

Government and research bodies in recent years have varied in their forecasts of continued unemployment but in all cases the overall prediction is for a continuing high level of unemployment throughout the 1980s. For example, the recently published information from the Government funded Institute of Employment Research at Warwick University in its 'Annual Review of the Economy and Employment' (July 1983) forecasts U.K. "real" unemployment at around 4 million for the rest of the 1980s including an average of 3 million people claiming unemployment benefits.

The report states that new job opportunities until 1990 will be concentrated on part-time work (which is chiefly the preserve of women) and in white collar occupations such as management, the technology sector and the professions. The number of women workers is expected to rise by 1% to 44% of the workforce. The report predicts a further loss of 1.7 million manual jobs only partly offset by a gain of 500,000 non-manual jobs. The following table gives the forecast rise and fall.

| HOW JOBS WILL RISE AND FALL | 1980 '000s | 1980-1990 + or - % |
|---|---|---|
| Managers, administrators | 2,129 | + 5.7 |
| Education professions | 984 | - 4.3 |
| Health professions | 986 | + 9.4 |
| Other professions | 562 | + 11.5 |
| Literary, artistic, sport | 447 | + 26.0 |
| Engineers, scientists | 576 | + 14.3 |
| Technicians, draughtsmen | 601 | + 12.5 |
| Clerical | 4,056 | + 0.5 |
| Sales | 1,417 | - 5.6 |
| Supervisors, foremen | 104 | - 10.0 |
| Engineering craftsmen | 2,143 | - 5.3 |
| Other transferable craftsmen | 907 | - 18.0 |
| Non-transferable craftsmen | 675 | - 27.4 |
| Skilled operatives | 622 | - 15.3 |
| Other operatives | 4,712 | - 18.0 |
| Security occupations | 386 | + 25.0 |
| Personal service occupations | 2,932 | - 3.0 |
| Other occupations | 789 | - 38.1 |
| Non-manual | 11,755 | + 3.8 |
| Manual | 13,271 | - 12.9 |
| All occupations excluding HM Forces | 25,026 | - 5.0 |

Source : University of Warwick Institute for Employment Research, using Warwick occupational categories.

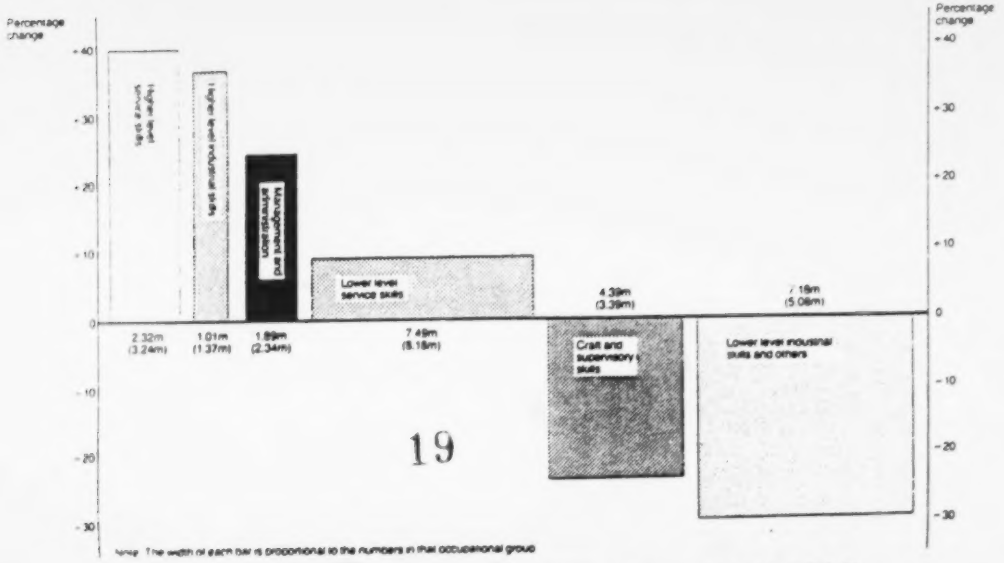
Changes in Technical and Vocational Education to meet Changing Needs

Many recent developments in technical and vocational education and training have been in response to the changing employment patterns. In particular, it has become increasingly difficult for those who leave school at the minimum leaving age of 16 to find employment, and especially in the particular manufacturing industries which have been the major employers in their regions. To a lesser extent, the number of places for the first time job applicants is diminishing in all other sectors. The task of technical and vocational education therefore is to prepare young people with the skills and the flexibility which will be needed in the next decades. Percentage changes in employment by broad occupational groups giving actual changes from 1971 to 1982 and forecast changes to 1990 are set out in the chart on the following page (Source: The Manpower Services Commission Corporate Plan 1983-1987, published in June 1983).

Reproduced from the Manpower Services Commission Corporate Plan 1983-1987

Employment by broad occupational group percentage changes 1971-90

(figures not in brackets refer to the actual numbers employed in these occupations in 1971, and figures in brackets refer to the numbers estimated for 1990)




Note: The width of each bar is proportional to the numbers in that occupational group



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## PART II : THE EDUCATION SYSTEM

### The Broad Divisions of Responsibility

Annex I illustrates diagramatically the education system of the United Kingdom. Universal primary education was introduced into the U.K. by the Education Act of 1870. Primary education became free in 1902. The present system provides 11 years of compulsory full-time primary and secondary education between the ages of 5 and 16. Post 16 full-time education may be in schools (normally for a maximum of two years) or in further education colleges. The latter cater for part-time as well as full-time students. Advanced further education is undertaken in colleges and polytechnics and in universities.

The U.K. is a unitary state but education is the responsibility of a different Government Minister and different Government department in each of the four constituent countries of the United Kingdom:

England : Secretary of State for Education and Science
Department of Education and Science (London)

Scotland : Secretary of State for Scotland
Scottish Education Department (Edinburgh)

Wales : Secretary of State for Wales
Welsh Office (Cardiff)

Northern Ireland : Secretary of State for Northern Ireland
Department of Education Northern Ireland (Belfast)

In each part of the U.K., responsibility for the education

service is distributed between central government, the Local Education Authorities (called LEAs), Education and Library Boards in Northern Ireland, the governing bodies of educational institutions and the teaching profession.

The legal basis for this partnership in England and Wales is found in the 1944 Education Act (and later Acts which have amended parts of it), the Regulations made by the Secretary of State for Education and Science and those made by the Secretary of State for Wales. Ministerial responsibility is divided as follows: the Secretary of State for Education and Science has overall responsibility for non-university education in England, Wales and Scotland. The Secretary of State for Wales is responsible for non-university education in the Principality. There are parallel arrangements in Scotland and Northern Ireland.

The day-to-day running of the publicly maintained education service is, however, left to the LEAs; it is their duty to provide schools and colleges in their area and administer them. But although responsibility for the secular curriculum rests with the individual authority or school governing body, as the case may be, the timetabling of subjects, the choice of textbooks and the detailed content and method of day-to-day teaching are largely left to the discretion of Principals or Headteachers and their staff.

The educational system gives scope for local as well as national initiative, allowing authorities, schools and teachers a wide measure of freedom to develop education along lines they consider best suited to their localities.

The Department of Education and Science - General Responsibilities

The Department of Education and Science's main concern is formulating national policies for non-university education in England, and Government policies for the universities in England, Wales and Scotland. It has few executive functions and does not provide or administer schools or colleges, or determine their detailed curricula. Although part of the Department s work involves carrying out specific statutory duties, its main functions are the broad allocation of resources, and influencing the other partners in the education service (the Local Education Authorities, the school governing bodies and the teachers).

The Department plays an important part in determining the level of the Rate Support Grant which is given annually by central government to local authorities. It is responsible for educational building policy in England, approving building projects to ensure 'value for money' and exercising control over educational capital expenditure.

The Department is responsible for the supply and training of all teachers in England, for the qualifications of school teachers in England and Wales and for the superannuation of all teachers in England and Wales.

The DES commission researches, related to its own policy interests and those of the education service generally, from universities and other bodies, and supports work on the development of the school and further education curriculum and public examinations through various organisations.

In exercising its responsibilities for the maintenance of national educational standards, the Department is assisted by Her Majesty's Inspectorate, whose members work as an independent body, monitoring the efficiency of schools and of colleges

in the public sector and providing Ministers with specialist professional advice.

Ministerial Responsibility for Education in Wales

Ministerial responsibility for education in Wales, with the exception of universities and a few other matters, rests with the Secretary of State for Wales. As far as non-university education is concerned, his Department, the Welsh Office, occupies within the Principality a position comparable to that of the DES in England. The Education Department of the Welsh Office which is headed by an Under-Secretary, comprises three divisions: the first deals with schools; the second with further and higher education; and the third with general education services, such as building, research and finance (including payment of grants to Local Education Authorities and certain other bodies for the teaching of the Welsh language or the teaching of other subjects in Welsh).

The Role of the Local Education Authories (LEAs)

There are 97 Local Education Authorities (LEAs) in England; the Inner London Education Authority (ILEA), the Councils of the 20 Outer London Boroughs, 36 metropolitan districts and 40 counties. Wales has 8 Local Education Authories - one per county. Scotland has 12 and Northern Ireland has five. The LEAs are part of the elected system of local government.

The day-to-day administration of education in each LEA is the responsibility of the Chief Education Officer (CEO). The CEO will usually have the assistance of a Deputy and a number of Assistant Education Officers and other professional and administrative staff. Normally a number of subject advisers, organisers or local inspectors are also employed by a Local

Education Authority; these give a professional lead to teachers as well as advising their authorities. It is usual for the LEA to appoint some Officers with particular responsibility for further education which will include most of the technical and vocational education provided within the authority. This policy allows for Officers with specialist knowledge to be appointed but also means that there is sometimes a lack of co-ordination between policies for schools and further education.

Under the 1944 Education Act, LEAs have a statutory duty to contribute towards the spiritual, moral, mental and physical development of the community by ensuring that "efficient education .... shall be available to meet the needs of the poulation in their area". In discharging this duty LEAs in England must work within the legal framework laid down by the various Education Acts and the Regulations made by the relevant Secretary of State. LEAs are responsible for providing and administering the publicly maintained schools and colleges in their areas and for recruiting teachers and paying their salaries. In addition, they have to provide educational buildings, materials, equipment and back-up an advisory service. Through their national associations and other bodies, LEAs contribute to the exchange of educational ideas regionally and nationally and to the developments of national policies for education.

Financing education

For the money spent on education the LEAs receive support from central government. This support is channelled through the Rate Support Grant (RSG); the balance of LEA expenditure is met mainly from the rates (local property taxes), but most authorities have additional income from such charges as fees for evening classes, for example.

The RSG is paid annually to local authorities as central government's contribution to the cost of local services. The system is intended to secure an equitable distribution of Exchequer support, reflecting the variety of local needs and resources. The grant is a contribution towards each authority's spending as a whole; no part of it is specifically earmarked for education or any other particular county or local service. However, though central government does not decide how authorities should spend the grant they receive, it does consult with them and give advice at national level on expenditure priorities.

No fees are charged for local authority primary or secondary education. However, fees are charged in local authority further education colleges. These are often waived in respect of students under 18 and particularly when such students are in full-time education. Students on degrees and some other courses receive mandatory maintenance grants (usually means tested). Some students receive discretionary grants.

The Private Sector

Alongside the local authority schools there operates a small scale but significant private education sector. Private sector schools are principally concerned with providing general not vocational education. However, a limited number of specialist schools which are privately financed exist such as stage schools and schools offering a curriculum heavily biased towards studies for office-based occupations. There is a small but growing privately financed further education sector principally concerned with providing courses aimed to prepare young people in the 16-22 age group for the examinations of various professional bodies. Many cater predominantly for students from overseas.

Whilst some of these institutions offer tuition for craft-based education and do teach technical skills, this is much rarer than studies for accounting, banking or other office-related occupations. This possibly reflects the very substantial expense involved in providing workshop or laboratory based tuition.

Vocational Studies in Schools

The progressive raising of the secondary school compulsory leaving age to its present level of 16 years has been accompanied until quite recently by a parallel reduction in the introduction of formal vocational studies into the secondary school curriculum. Subjects such as technical drawing, woodwork, metalwork, home economics, feature in the curriculum of most secondary schools. However, whilst they are introduced as broadening activities they are frequently dropped in the final two years of the compulsory period of secondary education (ages 14-16) by those students with reasonable academic aspirations in order to allow greater concentration on the school systems standard 16+ examinations (O-levels and CSE).

In the fourth and fifth years of secondary school between the ages of 14-16, many schools introduce office skills into the curriculum, particularly typewriting and subjects such as office practice or use of office machinery. Shorthand has also been taught to this age group but is now offered much more rarely. Because typewriting has been seen as an occupational rather than a social skill, it has been taught predominantly to girls who form the vast majority of junior office workers undertaking typewriting functions.

Work Experience for those in Full-Time Education

In recent years there has been a substantial growth in the provision of work experience for young people in school and further education, both pre and post the compulsory school leaving age of 16. In the main, this consists of a period of one or two weeks spent on the premises of an employer. This may involve actual productive work or may take the form of watching, observing and attending talks, discussions or lectures. Sometimes the work experience may be undertaken on a single day basis spread out over a period of some months. The legal authority for this is to be found in the Education (Work Experience) Act 1973 which enables education authorities in England, Wales and Scotland (but not Northern Ireland) to arrange for children to have work experience as part of their education in the last year of compulsory education.

One interesting way of providing work experience adopted in some colleges has been to establish an exchange system whereby when employees come to college for further education, the college reciprocates by sending one of their full-time students to work for the employing organisation on that particular day. In such circumstances wages are not normally paid.

It is felt in some quarters that the introduction of the Youth Training Scheme (described later in this paper) has very substantially increased pressures on employers to provide training places for several hundred thousand young people between 16-17 years and may have the effect of reducing or severly undermining the very substantial expansion in short term work experience places which have taken place over the last five to six years. A number of regional and national bodies exist to develop and facilitate provision. A number of agencies have been established to help schools and colleges to obtain work experience places. These include Project Trident and Young

Enterprise. Some LEAs are actively involved in the work of identifying suitable places but most often the initiative and effort lies with the individual institution or the teachers directly concerned with particular courses.

The Further Education System

Most young people commencing a course of technical and vocational education post 16 do so in a local authority further education or technical college and expect to receive a training and education which will enable them to obtain a job in their chosen industry, preferably with recognised crafts or technician status. The system has traditionally enabled those with the ability and perserverance to progress from craftsman to technician and to full professional status. However, there has been a growing tendency in recent years for some occupational areas and including, for example, engineering, to limit the access fo full professional status to those who first obtain a degree, then undertake further vocational studies and obtain work experience. The professional bodies set their own rules governing entry to membership and may provide their own examinations. The most august bodies have obtained chartered status which is granted in the U.K. by the Privy Council.

The term "further education" can be used in a general sense to cover all post-school education, but in the U.K. it usually refers to post-school non-university education, which is highly developed and very diverse. Much of the further education available is broadly vocational in purpose, there is provision not only for continuing general education, but also for cultural and leisure activities. In 1980-81 a total of 2,130,512 people attended courses at publicly maintained further and higher education establishments. (This figure excludes cultural and leisure activities at adult education centres).

Further education opportunities extend from lower-level technical and commercial courses, through specialised courses of various kinds to advanced courses for those aiming at higher level posts in commerce, industry and administration, or taking up one of a variety of professions. (The term "advanced courses" usually refers to courses leading to qualifications which are above the standard of GCE A-level or National Certificate.)

Full-time and sandwich courses of advanced further education now constitute an important part of higher education; they include courses at graduate level in almost every technical and academic discipline. This very flexible system of further education permits anyone to acquire whatever qualifications his or her capabilities and available time allow. Study may be full-time; "sandwich"; part-time during the day (for example, one day a week or full-time for short periods); or in the evening only. There are no upper age limits, and qualifications can be acquired for their own sake or as a step towards more advanced courses.

The institutions include many different types: the polytechnic and other colleges with a variety of titles - colleges of further education; colleges of technology; technical colleges; tertiary colleges; colleges of commerce; colleges of art; agricultural colleges; adult education centres. In addition, there is a group of institutions often called colleges or institutes of higher education. These resulted from the integration of teacher training outside the universities with the rest of further education.

Particular features of the further education service are its strong links with commerce and industry and the interest shown by employers in what it provides. To some extent the courses available in an area depend on the nature of local commerce and industry. Co-operation between the business world

and further education establishments is encouraged by the Government and its partners in the education services, and employers are often involved in designing courses.

Responsibility for co-ordinating publicly maintained further education in different areas of England rests with nine Regional Advisory Councils, set up by the local education authorities in each region. The members of these Councils represent the LEAs, universities, further education establishments, and commerce and industry. In Wales, responsibility for co-ordination of maintained further education rests with the Welsh Joint Education Committee which is the Principality's Regional Advisory Council.

Further Education and Industrial Training

Each year more than half a million people are released by their employers to undertake vocational further education on a "day-release" (usually one day per week) or "block-release" basis (so many full weeks per term or academic year). Most of them are young people who have enrolled in courses leading to recognised qualifications, such as those of the City and Guilds of London Institute, the Technician Education Council, the Business Education Council (Business and Technician Education Council from 1 October 1983) and the Royal Society of Arts. Often such courses are linked to on-the-job training, possibly under schemes agreed between further education examining bodies and industrial training organisations.

Government Directives on the Control of Productive Work in Technical and Vocational Education

Restrictions on commercial activities by educational

establishments which are controlled by local education authorities are restricted by the limitations on the authorities' power under the Local Government Acts. Work Experience is covered under the Education Acts. However, there is no one set of formalised regulations on the overall control of productive work in technical and vocational education. A wide range of regulations may be operative in particular circumstances and even within the scope of this project it has been seen that precise interpretations of what is allowable and the required methods of accounting for any monies received from sales of goods and services, varies from authority to authority. Apprentices and employees under training are protected by normal health and safety regulations and other legislation (see Workshop Sponsors and their Statutory Responsibilities further on).

Since production for marketing/sale in educational or government training establishments is rare and small scale where it exists there has not grown up a body of formal law. However, as indicated in the chapter on MSC Training Workshops, every effort is usually made to avoid conflict or competition with normal producers of goods and services.

MSC Technical and Vocational Education Initiative

This programme was announced towards the end of 1982. The objective was to encourage the introduction of pre-vocational studies as a greater part of the 14-16 school curriculum and to promote planned programmes of study for the 14-18 age group incorporating a balance of both general and vocational education.

Fourteen local education authorities have been chosen to pilot schemes from September 1983 and additional finance has been provided by the MSC to help launch the schemes. This finance is guaranteed for a five-year period. Each LEA scheme

is different and monitoring will take place to evaluate the effectiveness of the methods employed. It is likely that the scheme will be extended to some other LEAs within the next year. The fourteen LEAs are Barnsley, Bedfordshire, Birmingham, Bradford, Clywd, Devon, Enfield, Hereford and Worcester, Hertfordshire, Leicestershire, Sandwell, Staffordshire, Wigan and Wirral.

Examining and Validating Bodies

The English system is notable for the diversity of arrangements whereby a formal qualification recognised as relevant to work in a particular occupation or a profession can be obtained. The framework for secondary school examinations has to be approved by the Secretary of State for Education and Science (and his fellow Secretaries of State for Scotland, Wales and Northern Ireland). The Minister is advised by the Schools Council for the Curriculum. This body is to be superseded during 1983 by a Schools Examination Council and a second body provisionally called Schools Curriculum Council.

However, the actual examinations curricula and operation of the schools examination system is devolved to eight Boards with responsibility for the General Certificate of Education at Ordinary and Advanced ('O' and 'A') levels and 12 Local Examination Boards for the Certificate of Secondary Education (CSE). All but one of the GCE Boards have strong links with universities. A decision not yet implemented to replace both GCE O-levels and CSE by a common system of examining at 16+ has led to the formation of a number of Consortia of the GCE and CSE Boards based on geographical regions.

In contrast, technical and vocational education qualifications and professional qualifications have grown up on a more diverse basis. They involve:

(a) bodies established by the Secretary of State with formal responsibilities for the making of awards and qualifications;

(b) independent examining bodies having chartered status;

(c) local authority supported examining bodies usually operating on a regional basis;

(d) professional and other bodies often offering examinations as a condition of membership. The more significant have chartered status.

The Business & Technician Education Council (BTEC), the Technician Education Council (TEC) and the Business Education Council (BEC)

The establishment of the Technician Education Council in 1973 and of the Business Education Council the following year was a reflection of growing awareness of the importance of vocationally biased and technical further education courses. TEC and BEC plan, administer and keep under review unified patterns of full-time and part-time courses for people working in, or planning to enter, commerce and industry at technician or equivalent level. They are currently working towards a more unified system of courses in their respective fields. The Councils collaborate where their interests overlap and are to merge from 1 October 1983 and will be known as the Business & Technician Education Council.

Courses leading to TEC and BEC awards are now widely available at polytechnics, colleges and institutes of higher education, and certain other further and higher education establishments. TEC awards are at two levels - Certificate and Diploma and Higher Certificate and Higher Diploma. BEC awards are at

three levels: General Certificate and General Diploma, National Certificate and National Diploma and Higher National Certificate and Higher National Diploma. Some 150,000 new students are registered on BEC and TEC courses each year.

The Councils provide curriculum frameworks and detailed course specifications designed to meet the needs of students and industry.

City and Guilds of London Institute

The City and Guilds of London Institute (CGLI) is the major national examination body for the provision of vocational examinations for craftsmen and equivalent levels. The major part of its provision for technician examinations and courses has now passed to the Business & Technician Education Council. In recent years the Institute has pioneered work in pre-vocational education. It provides a skills testing service and a syllabus and examination service for courses for craft and technical teachers working in further education.

The Royal Society of Arts Examinations Board

The Royal Society of Arts Examination Board (RSA) undertakes curriculum development and provides syllabuses and public examinations for school, further education and privately entered candidates on a national basis. It is best known for its examinations for vocationally related office skills, but the Board also provides examinations in general education subjects and for such areas as linguist secretaries. It has a major interest in providing qualifications for teachers in the area of secretarial and other office skills and in respect of the teaching of English as a second or a foreign language.

## Council for National Academic Awards (CNAA)

The CNAA was established in 1964 by a Royal Charter. The Council's degrees and other qualifications awarded to those who have successfully completed approved non-university courses must be of a standard comparable to the awards of the universities.

## INSTITUTIONS IN THE FORMAL FURTHER AND HIGHER EDUCATION SYSTEM

### Further Education and Technical Colleges

There are in excess of 600 further education and technical colleges in the U.K. operating under the Further Education Regulations of the relevant government department. Many of these institutions have their origins in former technical schools which until the 1950s provided an alternative form of secondary education for young people of compulsory and post-compulsory predominantly technical and vocational education leading to qualifications recognised nationally and locally within a particular industry. In a majority of the cases the same colleges provide tuition leading to A-levels which is the standard 18+ academic qualification taken within schools and is the normal entry route to first degree courses at universities and other colleges in the U.K. providing higher education. The technical and vocational qualifications are also acceptable in many instances as alternative forms of entry to higher education.

A small number of further education institutions provide education relevant to one occupation or a limited range of occupations (for example, agriculture, horticulture or forestry) and a few provide education only for commercially based occupations. However, the vast majority of institutions provide tech-

nical and vocational education both for those wishing to enter craft and technically based careers (engineering, construction, hotel catering, etc.) as well as courses with a commercial bias.

Apprenticeships

The tradition of technical education in the United Kingdom has been very heavily influenced by the apprenticeship system which has grown up over the last 100 years as a result of progressive agreements with management and trade unions in particular industries. Only in a minority of cases is there also a legal requirement for an apprenticeship to be completed before work in a particular occupation may be undertaken. The majority of apprenticeship schemes were based on the assumption that the young person would enter into an apprenticeship agreement immediately when the period of compulsory full-time secondary education was complete. Apprenticeship has usually meant becoming a formal employee of a designated company and receiving an agreed form of training plus time off on a "day or block release" basis at a local college in order to receive the technical and vocational education for the formal qualifications required to complement the company-provided training. Apprenticeship rules have usually been the result of detailed negotiations between employers and trade unions either locally or nationally. Apprenticeships were the norm in industries such as engineering and construction but rare in occupations in commerce or the retail trade which nevertheless employ large numbers of young people. They have traditionally been based on an elapsed period of time as well as the formal achievement of specified standards of knowledge or the assessment of skills competency. Most day-release provision involves attendance at a college for one day plus one or more evenings per week for a period of anything from one to six years. Some schemes are based on a block-release system which involves the young people in periods of work for their

employer interspersed with blocks of anything from one to four or more weeks of full-time vocational education. Because of the prevalence of apprenticeships and of the day-release system for major technical occupations, the traditional technical college had a majority of its students attending part-time rather than full-time. However, growing unemployment among young people since the late 1970s has increasingly swung the balance of 16-19 year olds in college away from part-time to full-time education.

The table reproduced on the following page from "Education for 16-19 Year Olds" published by the DES and the Local Authority Associates gives an estimate of size (1980-81) of provision for 16-19 year olds in a single year. Since this table was published, provision under YOP at 190,000 has been superseded by MSC-YTS provision which is expected to cater for just under half a million young people in 1983-84 (see page 47).

The Polytechnics

The 30 centres of higher education in England and Wales known as polytechnics have come into existence since 1966, often as a result of the amalgamation of colleges extensively engaged in work at advanced level. They play a key role in higher education. (Many other further education establishments - for example, the colleges and institutes of higher education - share in the provision of advanced courses for full-time, sandwich and part-time students.) The polytechnics are primarily teaching institutions and have close links with commerce and industry; they offer a wide range of courses, a fact reflected in the composition of their student bodies. Among students at polytechnics are many who have jobs and are attending on a part-time basis (including block-release); others attend full-time or on a sandwich basis. Polytechnic courses lead to first and higher degrees, certain graduate-equivalent qualifications (for example, in

CLIENT GROUPS: ESTIMATES OF SIZE AND OF PRESENT PROVISION FOR 16–19 YEAR OLDS IN A SINGLE YEAR

| | CLIENT GROUP | POTENTIAL NUMBERS (000s) | PROVISION NOW MADE (000s) | Main types of provision |
|---|---|---|---|---|
| A. | Those who enter employment without any structured part-time education or training. | 200–300 | 5 | UVP pilot schemes. |
| B. | Those who enter employment and who have the opportunity for systematic education and/or training leading to an educational, vocational or professional qualification. | 500 | 280 | Young operative courses; CGLI craft courses; TEC and BEC certificate courses; MSC/ITB courses; RSA courses; courses leading to professional qualifications or college awards. |
| C. | Those without work or immediate prospects of work. | 200–300 | 180 | YOP schemes (not all with educational component) |
| D. | Those staying on with a view to proceeding to higher education in due course. | 400 | 335 | Full-time courses leading to A-level. |
| E. | Those seeking an essentially vocational qualification to fit them for employment at some stage up to 18. | 200 | 140 | CGLI craft courses, TEC and BEC diploma courses, OND courses; RSA courses; courses leading to professional qualifications or college awards. |
| F. | Those who do not wish to be committed to a specific vocational objective, but who wish to continue their general education, personal development and pre-employment preparation. | 200 | 135 | A-level, O-level and CSE courses; pre-employment and foundation courses; BEC General Certificate, TEC Level 1 units. |
| G. | Those who require remedial education to enhance their employment and life prospects. | 50 | 5 | Courses in literacy and numeracy; courses for physically and mentally handicapped; English language courses. |

The figures for potential numbers are estimates of the number of young people who might be provided for in a single year in the various ways shown. They are interdependent; the total size of groups A and C is put at some half million. The figures for provision now made show the number of young people actually receiving such education or training in a twelve-month period.

Reproduced from "Education for 16-19 Year Olds" (DES and Local Authority Associates, December 1980)

town planning), and the examinations of the main professional bodies.

Voluntary Colleges

There are 24 voluntary colleges in England and Wales. They were all originally established through the efforts of independent providing bodies, or through philanthropy, rather than by central government or a local education authority. Most are denominational but every college admits students from all backgrounds. They form an important part of the public sector of further and higher education in England and Wales. The colleges were originally teacher training colleges, but most have diversified into other related fields of study, offering, inter alia, diversified degree courses validated by the universities or CNAA.

Universities

Suitably qualified students from any part of Great Britain and Northern Ireland can be admitted to any of the universities. Universities operate under Royal Charters or, in a few cases, by Act of Parliament, and have complete academic freedom; they decide which students to admit, what and how to teach, which degrees to award and on what conditions, and make appointments to the academic staffs. There are 35 universities in England and Wales, 8 in Scotland and 2 in Northern Ireland.

Most of the 252,000 or so university undergraduates in Great Britain in 1980-81 were taking courses of three years' duration. Roughly two-fifths of them were reading science and technology; about one-fifth arts subjects; a further fifth social studies; and one-tenth medicine or dentistry. Smaller numbers

were reading education, agriculture or forestry, veterinary science and architecture. Universities are centres of research as well as teaching: of the 47,500 or so postgraduate students in Great Britain in 1980-81, nearly half were doing research for higher degrees, usually doctorates, while most of the remainder were taking a wide variety of courses for higher degrees, or one year courses of teacher training following a first degree.

## EXAMPLES OF SPECIAL INITIATIVES RELEVANT TO TECHNICAL AND VOCATIONAL EDUCATION

### National Engineering Scholarships Scheme

This scheme, which is sponsored jointly by the DES and industry, was introduced to attract young people into careers in the manufacturing industries. The scholarships are offered to students undertaking a first degree course in engineering who can demonstrate the ability to go on to a successful career in management. Worth £500 a year, free of tax, they are in addition to, and separate from, mandatory student grants. Competition for the scheme is keen and the selection process is rigorous. Information is available from the National Engineering Scholarships, Department of Education and Science.

### Insights into Computers

Because of the increasing importance of computers in commerce and industry the Government has said it wants as many young people as possible to gain insights into computer operation and application. The Micro-electronics in Education Programme (MEP) was launched in 1980 and the Department of Industry's Micros in Schools scheme in 1981. The aim of the first is "to

help schools to prepare children for life in a society in which devices and systems based on micro-electronics are commonplace and pervasive". The aim of the second was to put a micro-computer into every secondary school by the end of 1982. From 1 October 1982 primary schools became eligible for pound-for-pound support from the Department of Industry towards the cost of one micro-computer package. This scheme will be open to the end of 1984.

## EXAMPLES OF PARTS OF THE EDUCATION SYSTEM WITH A MARKETED PRODUCT

### Agricultural Education

The United Kingdom has a well developed education system for agriculture, horticulture and related subjects. Most agricultural education is conducted in specialist agricultural colleges. A particular feature of these in the U.K. is that each college has its own college farm. In the vast majority of cases the college farm is run as a commercial unit in that it is intended to be worked profitably. Still, the main raison d'être of the farm is its educational value and the credibility of the colleges of agriculture as educational units is believed to be greatly enhanced by the existence of the farms. This criterion will be relevant only if the farms can be shown to be commercially efficient. Because college farms are educational as well as commercial units, the range of agricultural enterprises per farm is normally greater than that found on a comparable farm in the same area of the country. This means that college farms are also likely to have somewhat higher overheads. Nevertheless, most make a profit or at least break even. The objective is always that at a minimum the college farm should be self-supporting.

Budget and accounting for the operation of the farm

is normally separate from that for the college itself. In some institutions there is a transfer of revenues from the farm to the college budget but this is exceptional. Should the farm make a loss it would be the Local Education Authority, or in the case of a voluntary college, the owner, who make good the loss. Increasingly, where a local authority agricultural college makes a profit, the LEA has used its discretion to allow the college to retain at least a proportion of this surplus to plough it back into the development of the farm. There is no legal requirement that this should happen.

Very exceptionally, accounts for a college and the college farm may be run together so that the accounts of the farm contribute significantly to the college budget. In the recent period of financial restraint for educational enterprises in the public sector, the existence of a profitable college farm has been used to mitigate what would otherwise have been more severe cuts in agricultural education. The revenue from college farms, as indeed from farming generally, vary tremendously from year to year. The range for college farms is from below £ 5,000 to in excess of £ 45,000 profit in a year from farms with acreage of from 2,000 to 5,000 plus. Five thousand acres is large by U.K. standards.

The scale and organisation of college farms normally reflects that which is common in the locality for an average or above average size farm. The main productive work on the college farm is not undertaken by the students themselves. A labour force is employed to operate the farm at standard commercial wages. On the whole, college farms are more labour intensive than standard commercial enterprises for the following reasons:

- there are more discrete enterprises on any one farm than a commercial unit of equivalent scale;

- the farm is used for educational purposes and is therefore normally expected to be kept more tidy, maintained more correctly and otherwise maintain higher standards, than may be necessary for commercial reasons;

- there is a need for the supervision of the work which students themselves do on the farm. This is normally the carrying out of routine duties for the purpose of learning.

For management purposes the Principal or Vice Principal of the college normally acts as the Farm Director and is supported by a Farm Manager. THe latter is most often also a member of the academic staff of the college.

The educational justifications for the existence of the college farm are:

- increasing the credibility of the institution (to students and others) since those who are teaching are seen to be capable of and actually to be running a good commercial unit. This affects the motivation of students by making it clear to them that staff know in practical terms what they are talking about;

- staff in the college are in the position of having to keep themselves up-to-date and develop their expertise. For example, those who lecture on crop production are likely to be responsible in an advisory capacity for activities related to crop production on the farm itself.

The farm is also used to give students experience of routine work under the guidance of staff and to give instruction in skills, for example, dehorning or injecting animals. It is also extremely useful in the development of powers of observa-

tion and alertness to the need to register and record problems as soon as they are manifest. The farm also provides ample opportunity for project work.

On most farms small areas are set aside for trials and demonstrations insofar as this is compatible with maintaining the commercial objectives. For example, three varieties of wheat may be grown for comperative purposes in circumstances where a normal commercial firm might grow only one. However, it is likely that all of the wheats grown would be expected to be profitable on that particular type of soil.

The Teaching Staff

About 90 per cent of staff employed in colleges of agriculture have degrees in agriculture or a related agricultural science. Some have postgraduate qualifications. All must have served a minimum of one year full-time working on a farm, although many have substantially more experience before entering teaching. Increasingly, those employed in agricultural colleges also have a formal teaching qualification although most often this is gained after they take up their full-time post. There are a smaller number of colleges in the U.K. which offer specialist provision to those teaching in agricultural colleges to obtain their post-graduate Certificate of Education. However, in recent years there has also been a move towards combining the courses for those teachers with other in-service courses for teachers in technical and vocational education. There are no Bachelor of Education degrees (first degrees for teachers) in agriculture or related subjects.

Enrolment

Students study part-time by day or block-release and full-time. Nationally, enrolments are quite small. In 1981-82 they were as follows:

- First Year Part-Time Preparatory Course 1,000 Ordinary National Diploma students on three-year sandwich;
- 650 Higher National Diploma students on three-year sandwich;
- 72 CSE degrees in agriculture (which are available at two colleges);
- a handful of post-qualification students each year.

Students starting full-time courses are with very rare exceptions all expected to have a minimum one-year full-time work experience on a farm.

Catering Education

Vocational courses for employment in catering and related industries are normally organised in further education colleges. However, home economics is taught in schools and some vocational preparation courses related to catering courses are now offered in schools pre and post 16 years.

Where formal vocational catering courses are offered in further education colleges, in almost all cases the college Catering Department has an associated training restaurant with a production kitchen attached to it. This is in addition to any other kitchens which are used for training and teaching

purposes.

The students on the catering courses are themselves involved in the preparation and serving of food for sale in the training restaurant. However, the restaurant is cleaned by full-time workers and technician support staff are employed as well as the teaching staff.

Training restaurants are only open when the students are available for the preparation of food and to act as waiters and waitresses. For this reason, the opening hours are more restricted than in a commercial restaurant. Opening hours will usually be restricted to the college academic terms and will vary from lunch once or twice a week through to lunch five days a week. In some cases they open for dinner in the evening. Charges are close to commercial prices for the area. Menus follow the needs of the education programme which can occasionally mean that the balance of the menu may not be that which would be found in a commercial restaurant.

There are widespread variations in the way in which local education authorities cost their training restaurants. The most frequent pattern is that colleges are urged to earn the highest possible percentage of the food costs. None make a profit. Acutal recovery levels for food costs also vary tremendously. About 50% is regarded as satisfactory although 80% recovery is not unknown.

In almost all cases, the food which is prepared and served in training restaurants is budgeted for as part of the overall normal running costs of the institutions. Income earned is then offset against the revenue. The question of offsetting other than food costs does not in practice arise because, as indicated above, the opening hours do not normally produce a revenue capable of extending the return even to the whole of the food costs.

## HIGHER EDUCATION

### Productive Work in Universities and Local Authority Higher Education

The universities receive the bulk of their finance from Government sources via the University Grants Committee. Other finance comes from trusts, property and investment income (especially in the case of older established universities) and from industry. Finance specifically for research and graduate study is also provided by the Science and Engineering Research Council and the Social Science Research Council (recently renamed Economic and Social Science Research Council). This money also comes from Government sources.

Although a substantial number of the under-graduate and post-graduate population of U.K. universities is enrolled in courses which are seen by the students as vocationally relevant, there is no guarantee that the students will be involved in productive work within the definition of the UNESCO project. Many under-graduate programmes do however include an element of work experience extending over a year or periods of months. Such courses are normally defined as sandwich courses. An assessment of the work carried out in the sandwich period may or may not contribute to the overall assessment of the category of degree achieved by the student. Even in areas of study which appear expressly work-related such as engineering, the students may spend a very substantial amount of time in lectures or laboratories and, in most universities, polytechnics or institutes of higher education, only a minority of time in workshops. Not all such institutions have separate workshops formally designated for productive work by students. However, an example of workshops for mechanical and production engineers at Imperial College, London, and for electrical engineering at North London

Polytechnic are included as part of the information supplied in Annex III.

The universities and colleges will normally have two categories of equipment, that for use by students as part of their education and training and that for use by technicians who are responsible for the repair, adaptation and maintenance of the equipment used by the students themselves.

Full professional qualifications are normally obtained by students after the completion of a first degree and possibly in some cases after completion of a period of post-graduate study.

Universities and polytechnics are frequently involved with industry in the development of prototypes or parts for prototypes. One or more university or polytechnic departments or possibly one or more institutions may be involved in a scheme if it is sufficiently large. The role of the educational institution will usually be to undertake the theoretical parts of the development and to produce small scale modules. Full scale prototypes would normally be made by the companies sponsoring or associated with the project. The finance for such schemes may come either from the company or from Government sources.

It has not been possible to conduct a survey to ascertain the extent of "marketable" productive work in the higher education service. Consultancy work by academic staff is normally encouraged and contracts may produce income for the department or institution which can be used to replace or update equipment or be set against standard institutional costs. There is no identifiable national pattern and no evidence of the extensive or even frequent use of under-graduates to produce marketable goods or services.

The Teaching Companies Scheme

A major development in recent years has been the teaching companies scheme operated under the auspices of the Science and Engineering Research Council (SERC). The aims of the scheme are to develop active partnerships between universities (and polytechnics) and manufacturing companies in order to:

- raise manufacturing performance by effective use of academic knowledge and capacity;
- improve manufacturing methods by effective implementation of advanced technology;
- train able graduates for careers in manufacturing;
- develop and retrain existing company and academic staff;
- give academic staff broad and direct associations with industry for research as well as background teaching.

The scheme operates through the establishment of teaching company programmes in which a university or polytechnic participates in a company project to achieve a substantial and comprehensive change in manufacturing. Companies involved are required to be committed to the change and must positively welcome academic collaboration in the technical and managerial activities in all phases and at all levels.

Permanent academic staff contribute to the programme and are assisted by high calibre graduates recruited in consultation with the company. Appointments are normally for two academic years. They carry the title of teaching company associates and are normally based full-time at the company and work in

collaboration with the company and academic staff on tasks within the programme. In addition, the university or polytechnic arranges induction and continuing tuition according to personal and programme needs. Such appointments may lead to higher degrees but should essentially lead to offers of employment in the manufacturing industry.

The Science and Engineering Research Council spells out the benefits of the teaching companies schemes as follows:

- "to the Associates:

- the Associate learns by experience working with senior academic and industrial staff on demanding tasks with real commercial, social and time factors. They should take a major step forward in an industrial career and acquire a higher degree;

(b) to the Company:

- the Company benefits from the academic and Associates contributions by application of advanced technology to its problems from the recruitment of able and ambitious teaching company associates;

(c) to the University/Polytechnic:

- the university and the polytechnic extend their research and post-graduate and post-experience teaching beyond the classroom and laboratory to operating companies with manufacturing facilities and may undertake consultancies or joint appointments or responsibilities;

(d) to the United Kingdom:

- the U.K. benefits from the short and long term application of academic resources to manufacturing and the demonstration of opportunities in industry for higher calibre young men and women."

Further information is available from the SERC and the individual universities, polytechnics and manufacturing companies involved.

Provision for Women, the Disadvantaged and Minority Groups

Equal opportunities legislation, race relations legislation and requirements for the employment of registered disabled adults and for the provision of special education for children and young people who are physically or mentally disabled all contribute to the process of encouraging if not always ensuring that satisfactory provision is made for persons in all categories. However, as may be seen from some of the comments in other sectors of the report, formal equality of access does not always result in actual equality. Even positive discrimination such as efforts by the MSC to encourage more girls to enter traditional male areas of training and employment meet with limited success and not a little covert obstruction.

For disabled young people, the layout of buildings and means of access can severely reduce opportunities in many cases as well as can the perceptions of capability in the minds of the educators, trainers or would-be employers.

Unemployment statistics show above average levels of unemployment among minority ethnic groups in some parts of the country. MSC provision as well as some local authority and charity initiatives have been specifically designed to attempt to alleviate the problems in obtaining effective training and

employment which face some minority groups as well as those who become disabled later in life as a result of accidents or illness. In 1977 the Government launched a major "Fit for Work" campaign and the MSC has been especially active in attempting to place disabled workers.

In August 1983 the Equal Opportunities Commission announced a decision to set up a Working Party to investigate factors which account for the absence of women teachers in craft, design and technology subjects. It is felt that the absence of women in teachers in these areas may contribute to the low take-up of these subject areas by girls in U.K. schools (see also page 58).

## PART III : THE ORGANISATION OF PRODUCTIVE WORK IN TECHNICAL AND VOCATIONAL EDUCATION

### FOR FORMAL EDUCATION

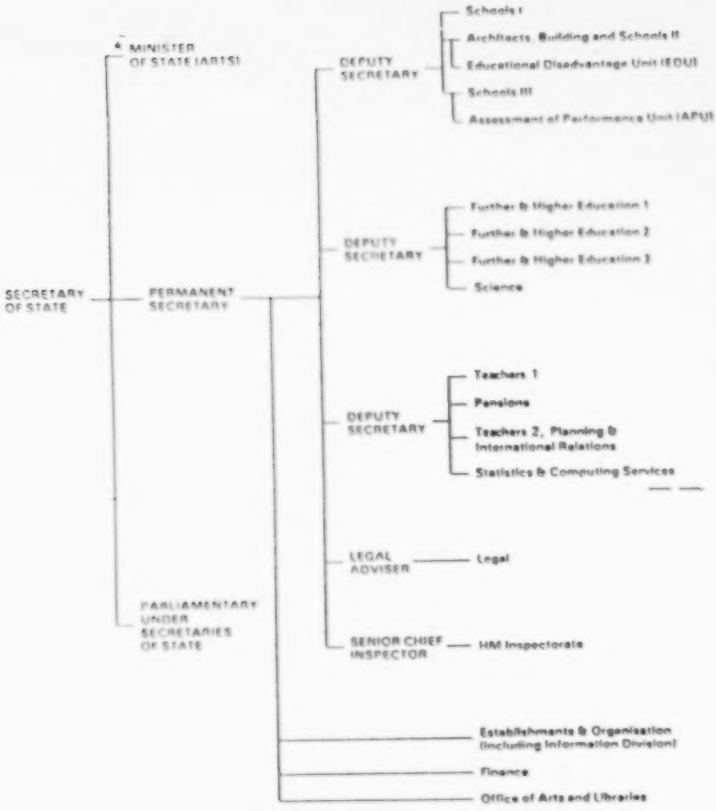
The following diagrams are given on the next pages:

- Organisation chart of the Department of Education and Science. The Sections Further and Higher Education 2 and 3 have responsibilities in connection with Technical and Vocational Education for young people and adults respectively.

- Organisation chart of the Scottish Education Department in which Section IV is the one principally, but not exclusively, involved in the areas of interest within the present study.

- A diagram of the organisation of a "typical" further education college.

DEPARTMENT OF EDUCATION AND SCIENCE - ENGLAND
ORGANISATION AS AT 1 JANUARY 1983




Further Education Curriculum Review & Development Unit

In January 1983 the Further Education Curriculum Review and Development Unit (which has been shown on this chart in previous editions) became an independent limited company. The Board of Management was reconstituted and the Unit's official title became the Further Education Unit (FEU). The Unit continues to be based at DES, Elizabeth House, York Road, London SE1 7PH.

Source: Department of Education & Science - A Brief Guide April 1983.

* not part of DES from June 1983.

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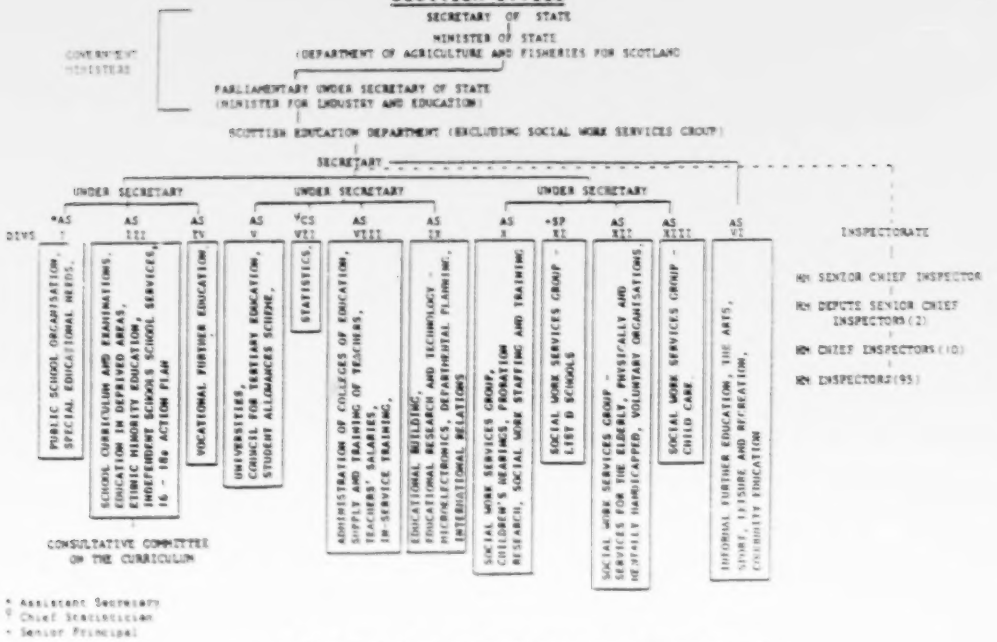
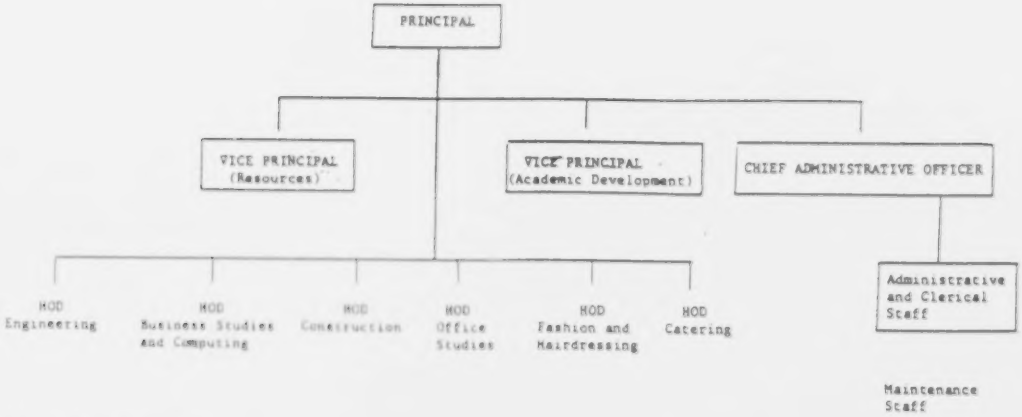

Scottish Office
SECRETARY OF STATE
MINISTER OF STATE
(DEPARTMENT OF AGRICULTURE AND FISHERIES FOR SCOTLAND)
GOVERNMENT MINISTERS
PARLIAMENTARY UNDER SECRETARY OF STATE
(MINISTER FOR INDUSTRY AND EDUCATION)
SCOTTISH EDUCATION DEPARTMENT (EXCLUDING SOCIAL WORK SERVICES GROUP)
SECRETARY
UNDER SECRETARY
UNDER SECRETARY
UNDER SECRETARY
DIVS
*AS I
PUBLIC SCHOOL ORGANISATION, SPECIAL EDUCATIONAL NEEDS,
AS III
SCHOOL CURRICULUM AND EXAMINATIONS, EDUCATION IN DEPRIVED AREAS, ETHNIC MINORITY EDUCATION, INDEPENDENT SCHOOLS SCHOOL SERVICES, 16 - 18s ACTION PLAN
AS IV
VOCATIONAL FURTHER EDUCATION
AS V
UNIVERSITIES, COUNCIL FOR TERTIARY EDUCATION, STUDENT ALLOWANCES SCHEME,
ΨCS VII
STATISTICS,
AS VIII
ADMINISTRATION OF COLLEGES OF EDUCATION, SUPPLY AND TRAINING OF TEACHERS, TEACHERS' SALARIES, IN-SERVICE TRAINING,
AS IX
EDUCATIONAL BUILDING, EDUCATIONAL RESEARCH AND TECHNOLOGY - MICROELECTRONICS, DEPARTMENTAL PLANNING, INTERDEPARTMENTAL RELATIONS
AS X
SOCIAL WORK SERVICES GROUP, CHILDREN'S HEARINGS, PROBATION RESEARCH, SOCIAL WORK STAFFING AND TRAINING
+SP XI
SOCIAL WORK SERVICES GROUP - LIST D SCHOOLS
AS XII
SOCIAL WORK SERVICES GROUP - SERVICES FOR THE ELDERLY, PHYSICALLY AND MENTALLY HANDICAPPED, VOLUNTARY ORGANISATIONS
AS XIII
SOCIAL WORK SERVICES GROUP - CHILD CARE
AS VI
INFORMAL FURTHER EDUCATION, THE ARTS, SPORT, LEISURE AND RECREATION, COMMUNITY EDUCATION
CONSULTATIVE COMMITTEE ON THE CURRICULUM
INSPECTORATE
HM SENIOR CHIEF INSPECTOR
HM DEPUTE SENIOR CHIEF INSPECTORS(2)
HM CHIEF INSPECTORS(10)
HM INSPECTORS(95)
* Assistant Secretary
Ψ Chief Statistician
+ Senior Principal

NOTE As a result of reorganisation of work Division II was eliminated but the remaining Divisions were not re-numbered.

An Example of the Structure of a Further Education College




HOD = Head of Department

NOTE Titles of particular posts will vary from institution to institution



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## NON-FORMAL EDUCATION

### Provision outside the Education Service

The U.K. provision for technical and vocational education outside the formal education system includes a range of organisations and agencies both government sponsored and private sector. There is no single source from which details of such provision can be obtained. The following paragraphs give information on the principal organisations and categories.

### The Manpower Services Commission

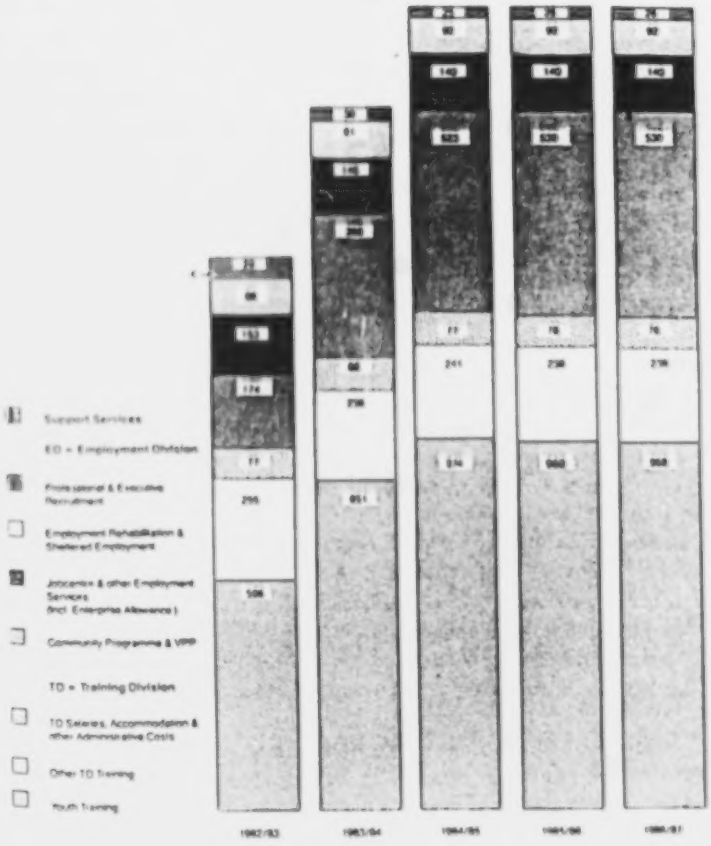
The Manpower Services Commission was set up by the Secretary of State for Employment in 1974 as a means of developing policies for and administering special schemes to combat the progressive increase in unemployment both among school-leavers and adults and to provide encouragement and opportunity for retraining and development to meet the needs of structural changes in the patters of industry and employment. It is a large quasi-autonomous body. The Commission's members are appointed in a personal capacity by the Secretary of State and are selected so that they are representative of industry, trade unions and education. The MSC provides the main source of government funding for training outside the formal education system.

The proposed MSC expenditure programme from 1982-83 to 1986-87 at constant prices in U.K. pounds sterling is reproduced on the following page.

The MSC both operates its own technical and vocational training facilities and finances those of other organisations.

Proposed MSC expenditure by programme, 1982/83 to 1986/87 constant prices (1982/83 cash limit prices, £m)

MSC CORPORATE PLAN 1982-83 TO 1986-87



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The activities of the Commission have enabled a substantial number of school-leavers and adults to participate in formal programmes of technical and vocational training (including some education) lasting not more then one year but occasionally of only a few weeks' duration. Funding has normally been available to provide maintenance support for these "students". Funding for employers has been provided to encourage employer participation in MSC schemes. In addition, the Commission has taken over and expanded an existing system of skills centres and training workshops at which new vocational skills could be learnt or old skills updated.

More recently, in addition to the skills centres, the Manpower Services Commission together with the Department of Industry has jointly sponsored a national network of Information Technology Education Centres (referred to as ITeCs) with the specific objective of providing training in new technologies predominantly for those in the 16-18 age group and with particular emphasis on provision for those young people who by temperament or because of a history of low achievement in school were unlikely to respond positively to provision within the standards of the FE system. In a highly competitive job market, this constitutes a group of young people likely to find it particularly difficult to obtain employment.

The MSC Youth Opportunities Programme

The MSC Youth Opportunities Programme (YOP) has been in operation for several years. The scheme has provided unemployed young people with full-time training and experience of work. Increasingly, many of the trainees have been allowed day-release to attend further education colleges, and the MSC and LEAs work together in planning such provision.

MSC New Training Initiative and Youth Training Scheme

Following a period of intensive consultation, the Government and the MSC published papers in December 1981 announcing "A New Training Initiative". The MSC document confirmed the Commission's commitment to the following three major areas:

(i) "we must develop skill training including apprenticeship in such a way as to enable young people entering at different ages and with different educational attainments to acquire agreed standards of skill appropriate to the jobs available and to provide them with a basis for progression through further learning;

(ii) we must move towards a position where all young people under the age of 18 have the opportunity either of continuing in full-time education or of entering a period of planned work experience combined with work-related training and education;

(iii) we must open up widespread opportunities for adults, whether employed, unemployed or returning to work, to acquire, increase or update their skills and knowledge during the course of their working lives."

A major part of the New Training Initiative Programme has consisted of plans to replace YOP with a new and better youth training scheme. This is to build on experience gained from YOP and other MSC schemes and from September 1983 all 16 year old unemployed school-leavers will be guaranteed a full year's foundation training under the scheme. Some 17 year olds will also participate. This will include induction and assessment; the provision where needed of training in basic skills (literacy, numeracy, basic use of tools and machinery, etc.); the opportunity for personal development and use of the basic

skills; off-the-job training as well as work experience; guidance and counselling throughout the programme; and a record and review of programmes for each young person.

The scheme is designed to meet the government commitment to provide a suitable place in 1983-84 to all unemployed 16 year olds who have not decided to continue in full-time school or further education. It has involved the Commission in identifying and attaining commitment from employers to provide such places for up to 450,000 16 year olds. At the time of writing this report it appears that the Commission will be successful in securing the required number of places. The extent to which the Commission will also be successful in obtaining the higher level quality of the training provided which was their principal objective has still to be identified. The Commission has stated that by 1985 it wishes to see the scheme extended to all 17 year olds who wish to participate.

The YTS scheme is a one-year integrated programme which should include a minimum of 13 weeks of off-the-job training and/or further education which will reinforce and support up to 39 weeks of practical experience of work. Under the scheme, each trainee is provided with an allowance (currently £ 25.00 per week).

YTS is expected to cost nearly £ 900 million in the coming year. This sum takes into account planned receipts from the European Social Fund.

Statutory and Non-Statutory Training Boards (ITBs)

In the period from 1964 to 1982, statutory training boards were established to plan and co-ordinate training facilities and apprenticeship provision within the industries for

for which they were responsible. The finance for the Boards came from a series of levies on employers in membership of the Board and from government sources (in more recent years, principally via the Manpower Services Commission).

In addition, there existed a few non-statutory Boards for major areas including the Agricultural Industry Training Board (responsible to and financed by the Ministry of Agriculture and Fisheries), the Local Government Training Board (financed from the Rate Support Grant provided to local authorities by the Department of the Environment) and the Electricity Council (financed wholly by the nationalised electricity industry).

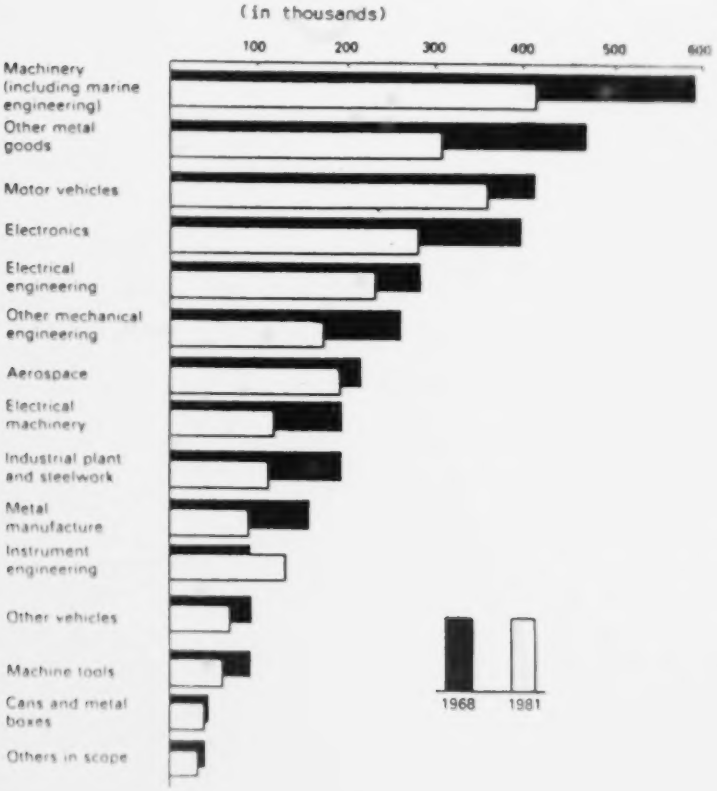
The MSC also encouraged, and in a few cases supported financially, training Councils for other industrial or commercial areas not covered by statutory Boards such as banking, insurance, etc.

In 1980-81 the Government, via the MSC, instituted a major review of the statutory ITBs and decided upon a major reduction in statutory provision. Following the review the Employment and Training Act 1981 was passed. The remaining seven statutory ITBs (some with changed functions) are:

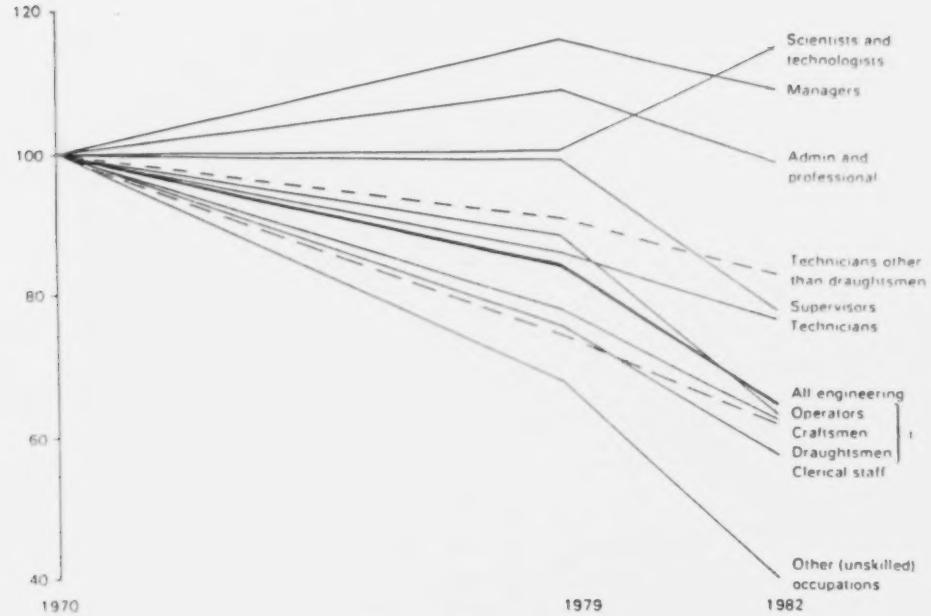
- Clothing Industry Training Board
- Construction Industry Training Board
- Engineering Industry Training Board
- Hotel and Catering Industry Training Board
- Off-Shore Petroleum Industry Training Board
- Plastics Processing Industry Training Board
- Road Transport Industry Training Board

By far the largest of these is the Engineering Industry Training Board with an annual expenditure in 1981-82 of just under 6 million pounds sterling.

The following charts, reproduced from the Engineering Industry Training Board's Annual Reports 1981-82 and 1982-83, show the changing pattern of employment for this major sector for 1968-81 and reinforce information given on page 3.



Changes in the numbers in each EITB occupational group in the engineering industry 1970, 1979 and 1982. Index numbers 1970 = 100




[1] Operators, craftsmen and draughtsmen have all declined by the same amount, slightly faster than engineering occupations

An indication of the widespread range of activities which a Board may potentially undertake is given by the Engineering Industry Training Board (EITB). The Board's 1980-81 Annual Report includes reference to:

- training for engineering skills
- professional engineering training
- management training and development
- training support for small firms
- the engineering careers information service
- export services
- apprenticeship competitions (including schemes for encouraging women)
- training of site personnel for engineering and construction industries
- research.

The following is a list of ITBs and other training organisations using the Engineering Industry Training Board's craft training system published in the Engineering Industry Training Boards' Annual Report 1981-82:

**Other ITBs**

Air Transport and Travel*
Carpet*
Ceramics Glass and Mineral Products*
Chemical and Allied Products*
Construction
Cotton and Allied Textiles
Distributive*
Food Drink and Tobacco*
Footwear Leather and Furskin*
Foundry (ITC)
Furniture and Timber*
Hotel and Catering
Iron and Steel*
Knitting Lace and Net*
Local Government
Man Made Fibres*
Paper and Paper Products*
Petroleum
Printing and Publishing*
Road Transport
Rubber and Plastics
Shipbuilding*
Wool Jute and Flax*

* ITBs to be disbanded

**Other organisations**

Bank of England
National Ports Council
British Rail Operations
Department of Education and Science
(universities and colleges)
Department of the Environment
Department of Health and Social Security
(nine Regional Health Authorities)
Gas Council
HM Dockyards
Home Office
National Coal Board
(one Division)
National Water Council
(nine Area Water Authorities)
Ordnance Factories
Post Office
Royal Mint
Scottish Education Department
(universities and colleges)
Freightliners Limited
Welsh Health Technical Services
Scottish Health Services
Ministry of Defence (Scotland)
Glasgow District Council
London Transport Executive (signals)

Voluntary Training Organisations

In addition it is current Government policy to encourage industrial sectors and sub-groups within sectors to establish their own voluntary training organisations (VTOs). The arrangements for setting up such VTOs have to be approved by the MSC. The finance comes predominantly from each industry itself. The number of approved non-statutory training organisations as at summer 1983 exceeded 140. A full list is available from the Manpower Services Commission.

The ITBs are concerned to establish standards both for training and for accompanying technical and vocational education. Some ITBs and VTOs have recently also been appointed managing agents of the projects within the MSC Youth Training Scheme.

As illustrated by the information supplied on the Engineering Industry Training Board a main area of ITB and VTO work is the provision of training packages and guidelines including training materials for use by companies in training their own staff. Some direct training is undertaken. The statutory Boards and the major non-statutory organisations maintain reasonably close relations with the technician and vocational education sector either by direct contact with providing institutions or via the local education authorities.

Apprentices and Other Groups of Employees

The Boards are concerned with all levels and all age groups of workers from unskilled, skilled and technician workers to fully qualified professional staff. Employers and trade unions participate in the negotiations in respect of the standards required and the duration of training including apprenticeships. In some instances statutory requirements must also be complied

with. However, the number of occupations for which there is a statutory requirement in the form of a "certificate to practice", under whatever title, is smaller than in European countries, for example the Federal Republic of Germany. Industries and professions in which some form of statutory requirements exist include medicine, pharmacy, dentistry, shipping/merchant navy, mining.

As part of the implementation of Objective I of its New Training Initiative (see page 46), the MSC is currently involved in extensive discussions with employer groups and trade unions in many traditional U.K. industries, in order to bring about changes in the apprenticeship system. This is expected to be an extremely lengthy process though some progress has been achieved.

Employers' Training Centres

The largest amount of actual work experience for training purposes in the U.K. has traditionally been that provided on employers' own premises for their own young employees as part of apprenticeship and other training schemes. For major employers in technically or scientific based industries and for the armed forces, this has usually been in specially provided training workshops. Given the extent and diversity of this provision, it is not possible to given an analysis on a national scale of the cost of providing equipment for and maintaining such workshops.

In recent years in a majority of industries the number of young recruits including apprentices has declined as a result of general relative economic depression, structural changes in demand and the effect on certain industries of technological change. There has been a reduction in the overall number of

workers required to provide a given output combined in many instances with a need to recruit personnel of different abilities, potential or age than had previously been the case. The development of the MSC system of Training Workshops (see page 57) has resulted in some employers training facilities being partly, largely or wholly transformed into workshops operating within the scope of the MSC New Training Initiative.

Other Privately Owned Training Organisations

Privately run organisations to train office, especially secretarial, staff have existed for many years. Mostly they operate under the title of school or college. However, in many cases they are principally training bodies providing little or no formal opportunity for concurrent development of the general level of education of the students.

In the past 18 months there has been a major growth in privately run training organisations, most established largely or wholly to act as managing agents for MSC Youth Training Schemes and special provisions for the retraining of adult workers.

Financing and Marketing Products

Other than for MSC and major training bodies, financial information is not readily available because of the diversity of the system. Although there are widespread and increasing opportunities for obtaining limited or short term productive work experience (in, for example, office, distribution or other service occupations) there is no overall system and what does operate is not geared to the production and marketing of a product.

In small companies, apprentices and others under training

may contribute directly to the total product but their work is unlikely to be separately costed. No figures have been identified. In large organisations the marketing of any product resulting directly from training would be very rare. The products of training activities, if any, would not normally be geared to batch or large scale production.

Individual instances can be identified both in schools and colleges and the non-formal training sector of products being produced in single and small numbers to provide, for example, special items for hospitals, the disabled or old people. These are extremely unlikely to be products suitable for marketing on a commercial scale. Any charge for a product or service would usually be nominal, e.g. fixed so as to cover the costs of raw materials. There is no evidence of intention to provide a surplus to fund or partially fund the training operation itself. Individual instances may arise in schools or colleges of the subsequent development of a product by arrangement with a commercial or semi-commercial organisation. The financial arrangements would be ad hoc rather than subject to an overall plan.

An example of the "one-off" product is the Evans VP2 aircraft constructed this year by unskilled school-leavers working under skilled supervision as part of an MSC-YOP scheme. The aircraft was successfully launched at Sunderland Airport by the Chairman of the MSC. Series production is not a possibility but the skills acquired in this imaginative scheme should be useful to and seen as impressive by future employers. Similarly, girls at Roedean School in Sussex - an expensive girls' (i.e. private) school - have built a working hovercraft. Students from Luton College of Higher Education working on a project at Vauxhall Motors related to a TEC Certificate Course in Mechanical and Production Engineering have made a toy car which went into limited production. Students at West Suffolk College designed and built a mobile nurse-call testing pack.

MSC Training Workshops

The MSC provides limited advice to those running MSC-sponsored workshops on how to market their products. Some information on this is given on pages 62-63.

Purpose and Aims of the Training Workshops

The training workshops established under MSC initiative and with the MSC prepared to meet up to 90% of agreed capital costs have been a major source of induction training for young people in the 16-18 age group in recent years. The provision has until now been under the MSC Youth Opportunities Programme but will become part of the New Training Initiative from 1983.

The principal objective has been to give young people work experience and training so that they were better placed to keep permanent jobs. The scheme has run in parallel with other MSC promoted programmes including:

- work experience on employers' premises;
- employment induction courses;
- short courses;
- community projects;
- work induction courses.

Training workshops came to provide training and work experience for young people in productive work environments under experienced supervision. The workshops produce goods or provide services but the main purpose is to give young people training in a range

of adaptable skills which develop their potential and improve their prospects of finding permanent employment. The quality of goods sold should, according to MSC requirements, so far as is practicable, approach or equal commercial standards. It is fundamental to the concept of the workshop that the trainees will derive little benefit or job satisfaction from producing sub-standard articles. There is, however, no guarantee that the skills acquired are necessarily those that are likely to be in most demand in the market place.

In 1982, the MSC sponsored a survey about the trainees in the workshops. They found that they held on average 42 trainees with a small number (3%) holding fewer than 10 and 14% holding between 10 and 19. A quarter of the workshops had more than 50 trainees in total. On average there were twice as many male as female trainees. Some 8% of the workshops were exclusively male (in practice - not a requirement) and in 40%, three-quarters or more of the trainees were male. In only 9% of the workshops were female trainees in the majority. The average workshops held 70% male and 30% female trainees.

Almost all the workshops were found to cater for disadvantaged young people including the educationally sub-normal and physically handicapped people. In about 18% of the workshops, disadvantaged young people comprised more than half of the trainees though in most other cases they were in a minority representing less than a quarter of the total complement. Young people from ethnic minority groups were catered for in just over half of the workshops. These tended to be either Asian or West Indian trainees although only in about 4% of workshops they comprised more than half of all trainees. The same survey found that all the sponsors of the training workshops had had substantial previous experience in dealing with young people (92%) and in running or backing socially beneficial schemes (87%).

A large proportion of the staff of the workshops are recruited from the unemployment register or at the time of their recruitment are under immediate threat of redundancy. Workshop supervisors are required to attend MSC training courses and have been found to do so in all but a very small proportion of cases. No information was found on the formal background and training of the staff recruited. It is however likely that the profile in terms of formal qualifications, education and work experience is substantially different from that which is found in further education establishments offering vocational education and training.

Workshop Sponsors and their Statutory Responsibilities

The workshops themselves are set up by sponsors approved by the MSC. These can include any responsible organisation including local authorities, other public bodies, private employers and voluntary bodies. The sponsors are responsible for managing and administering the scheme at the local level and employing the adults who are needed to run it. The sponsor is responsible for seeing that the young people under training do receive training and further education where this is agreed or considered appropriate. However, the young people on the schemes have included a large number who have not responded previously to education in a conventional environment. Therefore, among training workshops there has been a tradition of encouraging teachers from local further education establishments to come and provide the teaching on the workshop premises rather than sending the youngsters to the college.

Trainees are not employed by the sponsors for the purposes of the Contracts of Employment Act though are deemed to be employed for the particular purposes of the Factories Act 1961 Section 176(4). Sponsors have to assume all liability arising under

the general law in relation to adults and trainees. In particular, due regard has to be given to the requirements of the Sex Discrimination, the Equal Pay and the Race Relations Act as well as the relevant provisions of the Health and Safety at Work Act. Any special statutory requirements relating to the type of work covered by the scheme must be adhered to. Sponsors are required to be aware of their responsibilities and are asked to consult the relevant Government departments or agents as necessary. Sponsors must ensure that H M Factory Inspectors have full details of any scheme before it commences and must seek and follow the factory Inspectors' guidance on all safety aspects throughout the life of the scheme.

Minimum Criteria for an Acceptable Training Workshop Scheme

The MSC minimum criteria for training workshops schemes is stated as:

(a) "it must be available to the community;

(b) it must give suitable training and personal support to the young people on it including induction training, work experience, further education or other off-the-job training and personal advice;

(c) it must not put at risk the training and jobs of permanent employees;

(d) it must not be used to avoid normal training and labour costs;

(e) it must have the support of appropriate trade unions and employers associations;

(f) neither the sponsor or anyone else must gain from it financially;

(g) it cannot be approved to carry out work that would otherwise have been done within two years."

The following are examples of activities which have been carried out successfully in MSC workshops:

renovation of furniture; simple woodwork; simple painting and decorating; elementary training on the construction trade; renovation and alteration of clothing; knitwear; elementary metalwork; introduction to machine tools; use of handtools; clerical work; assembly work; land cultivation; packing; stores and stock control; pottery and ceramics; making toys for the social services or other voluntary organisations.

The requirement that productive work in the workshop should be labour intensive and not put existing businesses or jobs in normal employment at risk does frequently reduce substantially the opportunities which can be made available in a particular locality. In addition to the work-related skills young people are also given some help in coping with the transition from school to work and making the adjustment necessary to face adult life. Examples of topics covered in this connection include:

- applying for a job
- writing a letter to an employer
- functions of trade unions
- further education facilities
- public employment and training services
- race relations
- income tax
- social security

- housing
- employment legislation
- safety at work
- welfare services.

The period of training and work experience for trainees has been not less than six but not more than twelve months. However, trainees may leave the scheme at any time when they gain permanent employment and many have done so. Under the New Training Initiative the normal period will be twelve months. On leaving the workshop, trainees are given a Certificate recording the details of the work experience and any training or further education they have received whilst on the scheme.

Production and Marketing in Training Workshops

The activities of the young people in the training workshops are intended to result in a worthwhile marketable end-product. The revenue from sales is intended to help reduce the operating deficit of the workshop. However, training workshops are not intended to become self-financing. Sales revenue is expected at least to cover the costs of materials. The MSC documentation states that the selling price of the goods or services produced by the workshops should normally be the local retail price for comparable products or services. However, the ability of the workshops to market their products effectively is influenced strongly by the fact that they do not exist to meet an identified market demand for the product but in order to provide a particular form of training or work experience in a time of high unemployment among young people. Students mainly enter in small groups of five to ten. They sample various types of activity (in those workshops where a range of activities is available) and then choose one or two upon which to concentrate. However, this form of induction and recruitment means

that the ability of the workshop to produce goods in quantity is extremely limited. The annual revenue from workshops varies from a minimum of about £2000 to a maximum of about £20,000 per annum.

There are now some 300 workshops operating with up to 20,000 trainees at any one period of time.

At the present, the arrangements for buying raw materials are not centralised and so the raw material inputs are often purchased at prices above those which strictly commercial companies would pay. However, some workshops make elaborate local arrangements to obtain materials at substantially reduced costs or to obtain materials for recycling which would not be commercially viable.

The MSC has established a Training Workshop Resources Unit which has four professional staff to advise workshops on various aspects of their activities. Of these, Mr. T. Finn is particularly concerned with marketing operations.

The workshop management team or the sponsoring organisation should include someone with some experience of marketing and sales. However, this criteria is not always met to any really effective level. It is the opinion of Mr. Finn that an effective production and effective marketing arrangement is a prime criteria for identifying the level of effectiveness of the workshop overall. Good products are those which require the development of usable skills. This means that there is more pressure to produce goods of high quality than to produce in quantity. Although there is the need to produce something which will earn revenue, products which are clearly of benefit to the community rather than of more strictly commercial value have been found to be particularly suitable. Such products also help to increase the public's awareness of the existence of the workshops and generally enhance its

view of them. This in turn can lead to improved or increased employer recognition of objectives of the workshop and a greater likelihood that the young trainees will find employment during or at the end of their traineeship. A further benefit from this production policy is to encourage young people to apply to enter the workshops. The objective is to foster an improved self-image among trainees and their parents. It is not intended to encourage an upgrading of the overall ability level of the recruits.

Examples of goods and services which have proved very effective training vehicles in workshops include:

(a) products to meet the needs of charities or for charities to sell in their shops or by mail order;

(b) aids for the disabled which cannot be produced at a reasonable commercial price. (This particular aspect of work has also given rise to an intermediate need for research into the sort of products which will help the disabled). Local authorities have made available limited funds which can be spent on design and research projects. For example, the Greater London Council has made £15,000 available for this purpose. The Highlands and Islands Development Corporation in the North of Scotland has also been very active. The Society of Industrial Artists and Designers (the principal professional body for those working in commercial design) has participated with the MSC in making contact with newly qualified but so far unemployed young designers. These people will then be provided with grants to undertake projects which may be substantial and which are usually of a challenging kind. The projects themselves help the younger designer to obtain full-time employment at a slightly later date;

(c) products to meet identified civic needs not catered for commercially. For example, the workshop in Wick in Scotland designed and produced a concrete letter-box which was subsequently installed throughout the local authority area;

(d) development of prototypes. In this connection the North East London Polytechnic (Project Director, Mr. Richard Fletcher) has a contract to plan and bring together the productive capacity of training workshops with underused production capacity and technical expertise in order to help identify and produce prototypes which are expected to be useful at a time of industrial expansion. In London, the Greater London Enterprise Board, using finance from the Greater London Council, is prepared to pay for the project management of prototype schemes. The MSC pays for the associated design work;

(e) products to meet the educational, community and medical needs of Third World countries. It has been identified that simple products which are lacking in Third World countries can sometimes be made in training workshops, for example, stretchers. More complex products which have been made to meet such needs include prototype wind generators and solar converters;

(f) appropriate gifts and crafts. Gifts and crafts have been found to be good products for many training workshops. They have the potential to lead to a spin-off in the creation of small business. It is however important that the crafts should be such as to develop skills. Examples of this sort of product have included ceramics and picture framing.

At the present time, the training workshops lack expertise

in packaging and presentation of their products. Because the scale of production is small, it is not practicable to acquire special packaging from commercial sources. The way in which this particular shortcoming may be overcome in the future is still being considered.

It is also under discussion whether for the future, training workshops should or should not concentrate so heavily on manufacturing skills in a country where the manufacturing sector is in decline overall and the economy is increasingly dependent on service and serving skills. A few training workshops have their own shop attached to them. The chart on the attached pages gives an indication of the size and scope of some workshops. It is reproduced from the MSC Research and Development Series No. 8 "Training Workshops - The Way they Work in YOPS" by Michaela Dungate, published in February 1982.

In order to promote more effective marketing, the MSC Training Workshop Resources Unit is presently considering the production of distance learning packages which will enable one or two trainees in each workshop as well as managers to acquire simple marketing skills.

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| NAME & ADDRESS | SPONSOR | START DATE | PREMISES | RANGE OF ACTIVITIES |
|---|---|---|---|---|
| As Good As New<br>Unit 1<br>Rotherham Works<br>Spon Street, Coventry | Jobs for Coventry Foundation Limited | June 1976*<br>July 1978 | Class 4 industrial use factory + separately located shop | Upholstery; Industrial sewing; Cabinet making; Welding; Electronics; Office; Maintenance; Catering; Shop; Van |
| Avon Youth Workshop<br>2 Upper York Street<br>St. Pauls, Bristol | Avon Youth Enterprises Limited | Jan 1979 | Commercial ex-warehouse refurbished by trainees | Joinery; Wood milling; Finishing; Canteen; General Maintenance; Office |
| Bristol Youth Workshop<br>18 Nelson Road<br>St. George, Bristol | Bristol Youth Workshop (Nelson) Limited | 1978*<br>Oct 1979 | Purpose built factory on East side of Bristol shared with but independent from other living | Woodwork; Metal work; Office; Maintenance; Design & Graphics; Canteen |
| BHEMAS Training Workshop<br>Black Horse<br>Bathing Place, Bristol Road<br>London SW6 | British Young Families Housing Aid Association | Feb 1978 | Purpose built workshop premises, licensed from Church Army | Woodwork and finishing; 3-dimensional map making; Occasional delivery work |
| Intaskill (Sandwell)<br>25 Engine Street, Oldbury<br>West Midlands<br>(See Note 1) | Community Projects Foundation | Oct 1977*<br>Sept 1980 | Adapted old laundry building, leased from Council for Community Relations | Metal work; Welding; Basic electrics; Woodwork; Stock keeping; Commercial |
| Lambeth Training Workshop<br>3 Clapham Common Northside<br>London SW4 | London Borough of Lambeth | Oct 1978 | Factory premises in inner city borough | Light engineering; Welding; Woodwork; Paint spraying; Upholstery; Motor mechanics; Catering; Office; Stores |
| Manpower Services Workshop<br>St. Mary Mill<br>Selkirk, Borders | Borders Regional Council | Dec 1978 | Old mill converted to small units on industrial estate in rural area | Carpentry; Joinery; Painting; Metal work; Upholstery |
| Polmadie Training Workshop<br>20 Rosyth Road, Glasgow<br>(See Note 2) | Strathclyde Regional Council | March 1977*<br>April 1979 | Converted factory on industrial estate | Woodwork; Metal work; Welding; Industrial sewing; Painting; Screen printing; Office |
| Rhondda Enterprise Community Youth Workshops<br>Penrhiwgwynt Road, Perth<br>Rhondda, Mid Glamorgan | Rhondda Enterprise Limited | Sept 1979 | Derelict school converted into multi purpose workshop + HQ, other sites at Treorchy, Ferndale, Aberpergwm & 3½ acres Perth | Joinery; Metal Work; Office; Horticulture; Upholstery; New Technology |
| Timber Products<br>Broad Street, Cowdenheath<br>Fife | Fife Regional Council | Dec 1975*<br>July 1978 | One part of purpose built double factory, town outskirts | Woodwork; Painting; Technical Drawing; Canteen; Office |
| Topshop 1<br>Greyfriars Lane, Coventry<br>Also: Edgwick site &<br>Courtaulds site | Coventry City Council | Oct 1979 | 3 sites one in ex P.O. sorting office in city, one in large ex factory, one in vacated Courtaulds building | Light engineering; Welding; Metal work; Woodwork; Industrial sewing; Upholstery; Plastics; Reprographics; Sheet Bond; Audio-visual; Catering; Crafts; Technical drawing/Design; Vehicle renovation; Office; Stores |
| Walker Training Workshop<br>Fisher Street, Walker<br>Newcastle upon Tyne | British Shipbuilders Training, Education & Safety Ltd | June 1978 | Converted site within premises vacated by Swan Hunter | Woodwork; Metal work; Glass reinforced plastics; Welding; Office |

* First established under the Job Creation Programme. The second date refers to commencement of operation under YOP, except

† Intaskill Training Workshop moved from Birmingham to its present premises in September 1980, at which time it changed its name and increased its trainee capacity by 20.

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| LIFE AND SOCIAL SKILLS | FURTHER EDUCATION | OPTIONAL FEATURES | No. OF TRAINEES | MANAGEMENT/STAFF |
|---|---|---|---|---|
| Considered as integral part training | Some trainees do C&G or RSA day release | | 80 | 2 Co-Managers, 4 Senior Supervisors, 8 Supervisors, 4 Adults, Local patrons |
| Provided by non-part time tutor | Day release voluntary but encouraged | | 40 | Management Committee, Manager, 1 Deputy/Senior Supervisor, 4 Supervisors |
| Provided at Community Education Centre | Some via the C.E. Centre, some attend Brunel for C.& G. | Work experience placements via Social Support Unit which also provides counselling | 53 | Council of Management, Manager, 4 Senior Supervisors, Inc. office manager & health/safety officer, 8 Supervisors, 1 clerical asst., 2 CEP workers |
| Provided on site by manager and voluntary worker | All attend ½ day literacy/ numeracy at Brixton College | Aim to send out on site work towards end of year | 20 | Management Sub Committee Manager, 1 Senior Supervisor, 2 Supervisors, ½ share of admin. person, share van driver/ storeman with CEP project |
| 1 supervisor with special responsibility + part of all staff's work | A few attend day release + 1 evening a week. Arranging literacy | Arrange work experience in local firms. Social evening. Residentials | 90 | Advisory Committee, Manager, Administrator, 1 Senior Supervisor, 5 Supervisors, approval for 2 Trainee Supervisors |
| Provided by Brixton F.E. on & off site + own tutor for back up | Special options provided by Brixton College | | 88 | Acting Manager, Production Manager, Admin/training Manager, 11 Supervisors, Induction/R & as tutor, Clerk, Storesperson, overall management via Employment Promotion Office |
| Visiting tutors employed by Borders F.E. | Day release optional, + some short courses | Occasional use of work experience placements | 18 | Manager, 3 Supervisors |
| In attendance at time of visit but now Adult Tutors visit | Optional day release at Longside F.E. | | 50 | Manager, Administrator, 1 Senior Supervisor, 8 Supervisors, Stock control clerk |
| Provided by Rhondda F.E. College, also takes place informally within workshops | Mandatory for all trainees, with some doing C.& G. | Limited work experience opportunities for engineering trainees | 85 | Management Committee, Chief Executive, 2 Managers, Finance Manager, Training Officer, 3 Senior Supervisors, 11 Supervisors |
| All trainees attend Lauder Technical College 1 day a week. In 1 & as and ½ tech. class related to tv activity | | | 32 | Acting Manager, Secretary, 1 Senior Supervisor, 3 Supervisors |
| Block placement on one week in five basis, on site | | Residential placements. Access to specialist counsellor on site | 400 | General Manager, 2 Deputy Managers, 3 Site Managers, Finance, Personnel & Central Services Depts, 13 Senior Supervisors, 40 Supervisors, Clerical back up |
| Provided on site by Development Officer | Voluntary at North Tyneside | | 48 | Manager, Development Officer, Administrator, 1 Senior Supervisor, 5 Supervisors |

2 Polmadie Training Workshop was first set up in Castlemilk Community Centre as a Job Creation project in March 1977. In July 1978, it became Castlemilk Training Workshop, and in March 1979 it moved premises and changed to its present name.

1 Topshop is an Integrated Youth Opportunities Programme and also provides places on Short Industrial Courses, Community Projects and Work Experience on Employers' Premises. Block release work experience is also provided for fourth and fifth year school pupils as part of their careers education curriculum.

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ITeCs

Information Technology Centres (ITeCs) are financed jointly by the Department of Industry and the Manpower Services Commission. They have been established to provide training for some of the same group of largely low or under achieving young people who form the main poulation of Training Workshops. ITeCs aim to provide an introduction to computer programming teletext editing, word processing, computer maintenance, digital techniques, control systems and electronics. They use a mixture of basic training and work experience in the production of new technology items and aim to develop a range of adaptable skills in the trainees. Centres normally cater for around 30 young people at any one time.

ITeCs also aim to produce, via the trainees, a range of salable goods or services since it is believed that this will encourage the level of interest and commitment of the trainees. Revenue from sales is intended to reduce operating costs. Centres are not expected to be self-financing.

An Information Technology Consultancy Unit has been established as a mobile resources unit with personnel from industry and education areas dealing with new technologies. Its role is to assist centres in their initial setting-up stage.

Grants are available to assist with the establishment of ITeCs and trainees get standard MSC allowances.

List of addresses

The following are the addresses of organisations referred to in this project and other organisations which may provide useful contacts.

Manpower Services Commission, Training Services Division, Moorfoot, Sheffield, S1 4PQ

Manpower Services Commission, Selkirk House, 166 Holborn, London WC1

Department of Education and Science, Elizabeth House, York Road, London SE1 7PH

Scottish Education Department, New St. Andrew's House, St. James Centre, Edinburgh, EH1 3SY

Department of Education Northern Ireland, Rathgael House, Balloo Road, Bangor, Co Down BT19 2PR

The Welsh Office, Cathays Park, Cardiff CF1 3NQ

Business Education Council, Berkshire House, 168-173 High Holborn, London WC1V 7AG

Technician Education Council, Central House, Upper Woborn Place, London WC1H 0HH

City and Guilds of London Institute, 76 Portland Place, London W1N 4AA

Royal Society of Arts, John Adam Street, Adelphi, London WCs

Project Trident, The Trident Trust, 11 York Terrace East, Regents Park, London NW1 4PT

Young Enterprise, 221 New Road, Chatham, Kent ME4 4QA

Understanding British Industry, Sun Alliance House, New Inn Hall Street, Oxford OX1 2QE

Schools Council Industry Project, 160 Great Portland Street, London W1N 6LL

Southern Regional Examinations Board, Avondale House, 33 Carlton Crescent, Southampton S09 4YL

South East Regional Examinations Board, Beloe House, 2-4 Mount Ephraim Road, Royal Tunbridge Wells, Kent TN1 1EU

Welsh Joint Education Committee, 245 Western Avenue, Cardiff CF5 2YX

South Western Examinations Board, 23-29 Marsh Street, Bristol BS1 4BP

East Midland Regional Examinations Board, Robins Wood House, Robins Wood Road, Aspley, Nottingham NG8 3NR

West Midlands Examinations Board, Norfolk House, Smallbrook Queensway, Birmingham B5 4NJ

Yorkshire and Humberside Regional Examinations Board, 31-33 Springfield Avenue, Harrogate, North Yorkshire HG1 2HW

North Regional Examinations Board, Wheatfield Road, Westerhope, Newcastle upon Tyne, NE5 5JZ

East Anglian Examinations Board, The Lindens, Lexden Road, Colchester, Essex CO3 3RL

London Regional Examining Board, Lyon House, 104 Wandsworth High Street, London SW18 4LF

North West Regional Examinations Board, Orbit House, Albert Street, Eccles, Manchester M30 OWL

Yorkshire and Humberside Association for Further and Higher Education, Bowling Green Terrace, Leeds LS11 9SX

North Western Regional Advisory Council for Further Education, Town Hall, Walkden Road, Worsley, Manchester M28 4QE

East Midland Further Education Council, Robins Wood House, Robins Wood Road, Aspley, Nottingham NG8 3NH

Northern Council for Further Education, 5 Grosvenor Villas, Grosvenor Road, Newcastle upon Tyne NE2 2RU

West Midlands Adivosry Council for Further Education, Norfolk House, Smallbrook Queensway, Birmingham B5 4NB

Engineering Industry Training Board, St. Martin's House, 140 Tottenham Court Road, London W1P 9LN

Construction Industry Training Board, Radnor House, London Road, Norbury, London SW16 4EL

Off-Shore Petroleum Industry Training Board, Kingfisher House, Walton Street, Aylesbury, Bucks

Plastics Processing Industry Training Board, 950 Great West Road, Brentford, Middlesex TW8 9ES

Road Transport Industry Training Board, Capitol House, Empire Way, Wembley, Middlesex

Clothing Industry Training Board, Tower House, Merrion Way, Leeds LS2 8NY

Hotel and Catering Industry Training Board, P.O. Box 18, Ramsey House, Central Square, Wembley, Middlesex

Science and Engineering Research Council, Central Office, P.O. Box 18, North Star Avenue, Swindon SN2 1EU

Economics and Social Science Research Council, 1 Temple Avenue, London EC4Y 0BD

Mr. T. Finn, MSC Training Workshop Resources Centre, 25 Victoria Street, Cambridge

Greater London Enterprise Board, Greater London Council, The County Hall, London SE1 7PB

NELP Project under Mr. Richard Fletcher, North East London Polytechnic, Romford Road, London E15 4LZ

Institute of Manpower Studies, University of Sussex, Falmer, Brighton BN1 9RH

Organisation for Rehabilitation through Training (ORT), Whitehall Court, London SW1

National Bureau for Handicapped Students, 40 Brunswick Square, London WX1N 1AZ

Institute of Employment Research, University of Warwick, Coventry CV4 7AL

Council for National Academic Awards, 344-354 Gray"s Inn Road, London WC1

Local Government Training Board, 4th Floor, Arndale House, Arndale Centre, Luton, Bedfordshire

Agricultural Industry Training Board, Bourne House, 32-34 Beckenham Road, Beckenham BR3 4PB

The Electricity Council, 30 Millbank, London SW1

University Grants Committee, 14 Park Crescent, London W1N 4DH

Note

Addresses for Training Workshops, Skills Centres and Voluntary Training Organisations available from Manpower Services Commission, Training Services Division, Moorfoot, Sheffield S1 4PQ

Addresses of educational establishments, LEAs, etc. given in Education Authorities Directory and Annual published by the School Government Publishing Co. Ltd., Darby House, Bletchingley Road, Merstham, Redhill RH1 3DN

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Department of Education and Science, The Education System of England and Wales, October 1982

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Manpower Services Commission and Department of Industry, Guide to Information Technology Centres, November 1982

Manpower Services Commission, A New Training Initiative - An Agenda for Action, December 1983

Manpower Services Commission, Some Questions about the Youth Training Scheme, 1983

Manpower Services Commission, The Youth Training Scheme in Agriculture and Horticulture (Report of the Consultative Group for Training and Education in Agriculture), 1983

Manpower Services Commission, Guide to Training Workshops, February 1982

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Michaela Dungate, "Training Workshops" - The Way they Work in YOP (Manpower Services Commission Research and Development Series No. 8), MSC Reprinted 1983

Central Policy Review Staff, Education, Training and Industrial Performance, HMSO, 1980

Institute of Manpower Studies (IMS), Graduate Supply : Projections to 1985 (IMS Labour Market Information Brief No. 5 - updated), 1983

Stan Windass (Editor), Local Initiatives in Great Britain 1981 - Volume 1 - Economics, published by the New Foundation for Local Initiative Support, February 1982

Professor Laing Barden, Director, Newcastle Polytechnic, Industry and Higher Education, a paper presented to a Conference at the London Business School, July 1983

Committee of Vice Chancellors and Principals and Committee of Directors of Polytechnics, Joint Statement on Collaboration between Neighbouring Universities and Polytechnics, Press information published June 1983

Warwick University, Institute for Employment Research, Review of the Economy and Employment, July 1983

Science and Engineering Research Council, Report for the Year 1981-82

Science and Engineering Research Council, Teaching Company Scheme (Information Package)

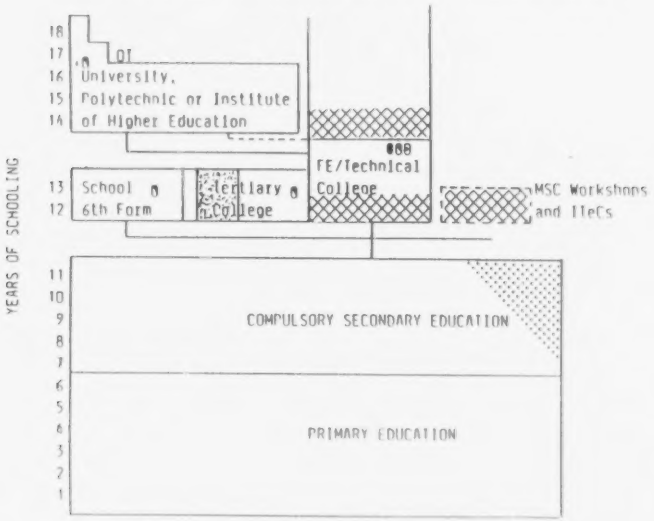
Timothy Finn, Marketing Consultant, Manpower Services Commission, Training Workshop Resources Unit, The Way Forward for Training

Workshops - Marketing of Products (Digest of talk to MSC staff, 1 July 1983)

Equal Opportunities Commission, Equal Opportunities in Craft, Design and Technology, Summer 1983

(Simplified)

Diagrammatic Representation of the U.K. Education System




Examinations required to obtain recognition of successful completion of one level of education before proceeding to the next level

Skilled worker craftsman or technician qualifications obtained within age range of 18-23 depending on industry

Minimum first degree course 3 years. Sandwich courses (including one year in industry) last 4 years. 4 years degree programmes most usual in Scotland. Some "enhanced" engineering degrees last 4 years

Professional engineering qualifications obtained one or more years after first degree

Initial teaching qualifications (for schools) either 4 year B.Ed. degree or other first degree plus one year Post-Graduate Teacher Training (leading to Post-Graduate Certificate in Education). About 50% of teachers in technical further education have formal teaching qualifications. Most have degrees and/or professional qualifications plus substantial experience working in the area of their specialism.

MANPOWER SERVICES COMMISSION

Head Office and field organisation

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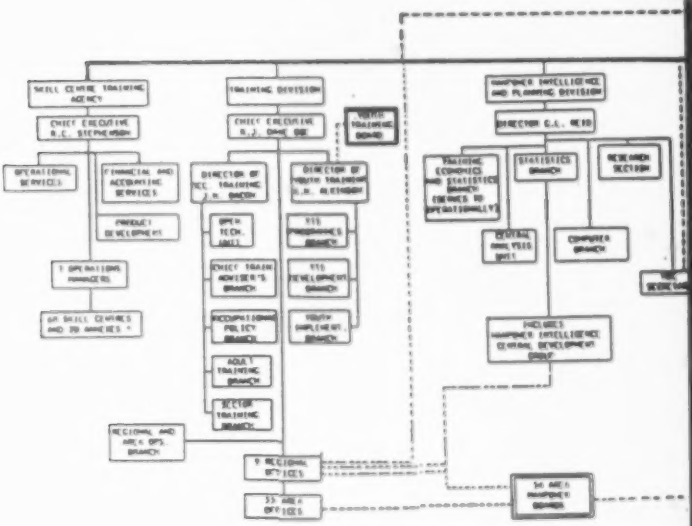

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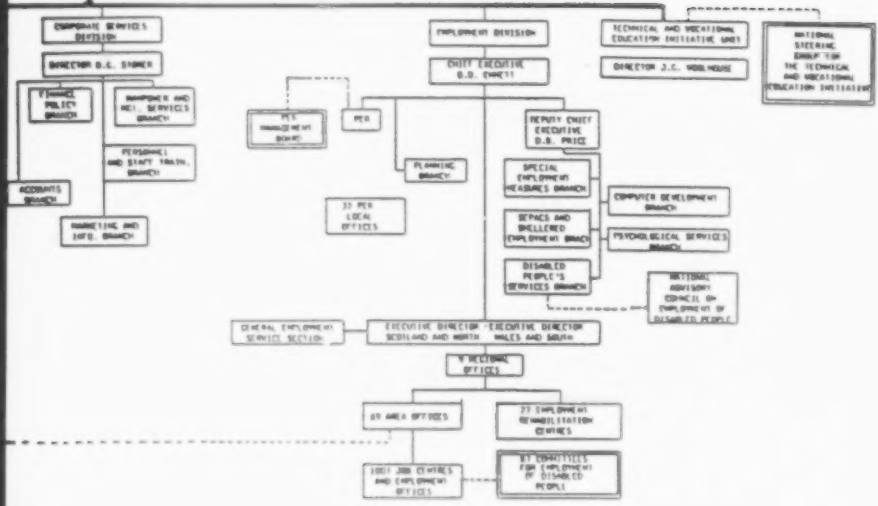



KEY

Advisory bodies including members from outside MSC

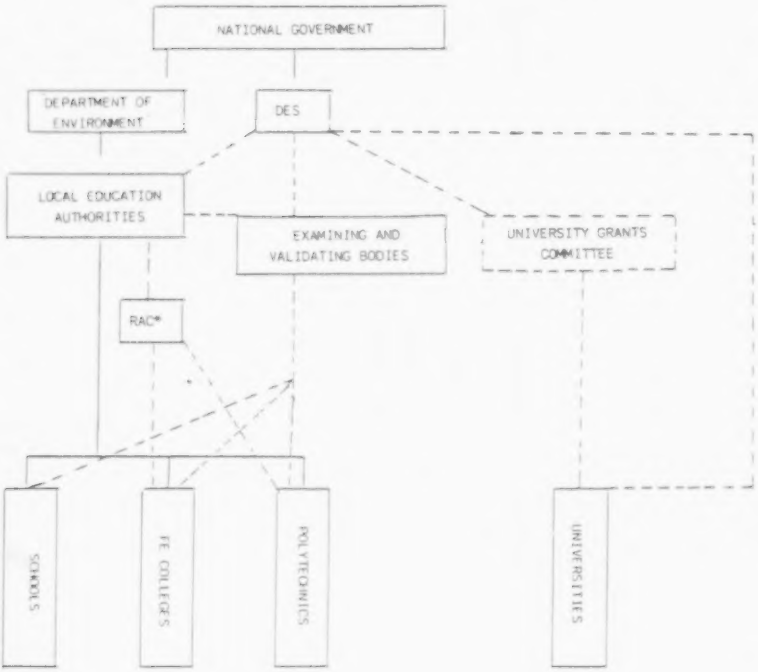
Direct lines of responsibility

Close liaison without direct responsibility

* In addition the Agency operates 2 Young People's Training Centres, 2 Instructor Training Colleges and the Merseyside Advisory Training Unit

Plan 1983-1987)

## Simplified Diagram of Education Structure in England




*Regional Advisory Councils

## Sample Workshop Layouts and Equipment Lists

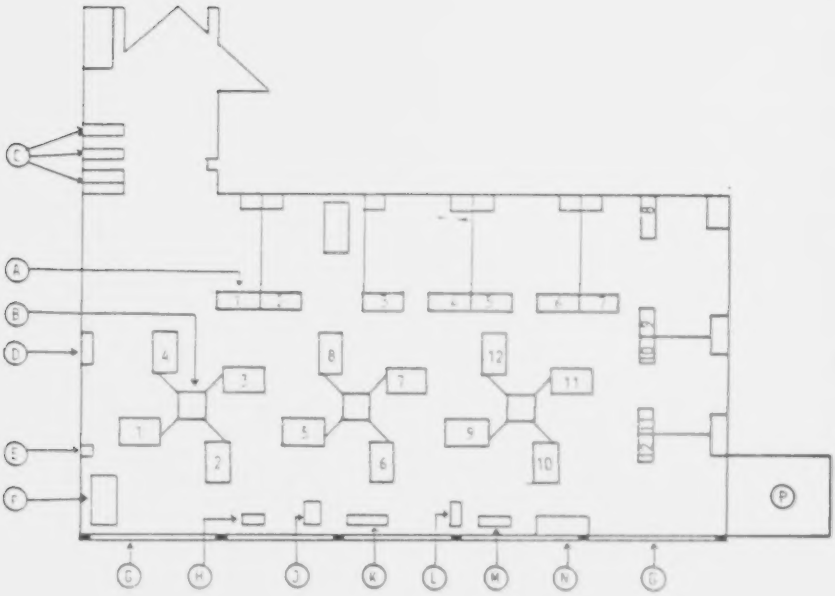
- Welding Workshops in Lancaster and Morecambe College of Further Education

- Electronics Laboratory at North London Polytechnic

- Students' Training Workshop, Mechanical Engineering Department, Imperial College, University of London

## Welding Workshop Layout

(Lancaster & Morecambe College of Further Education)




Scale 1 : 100

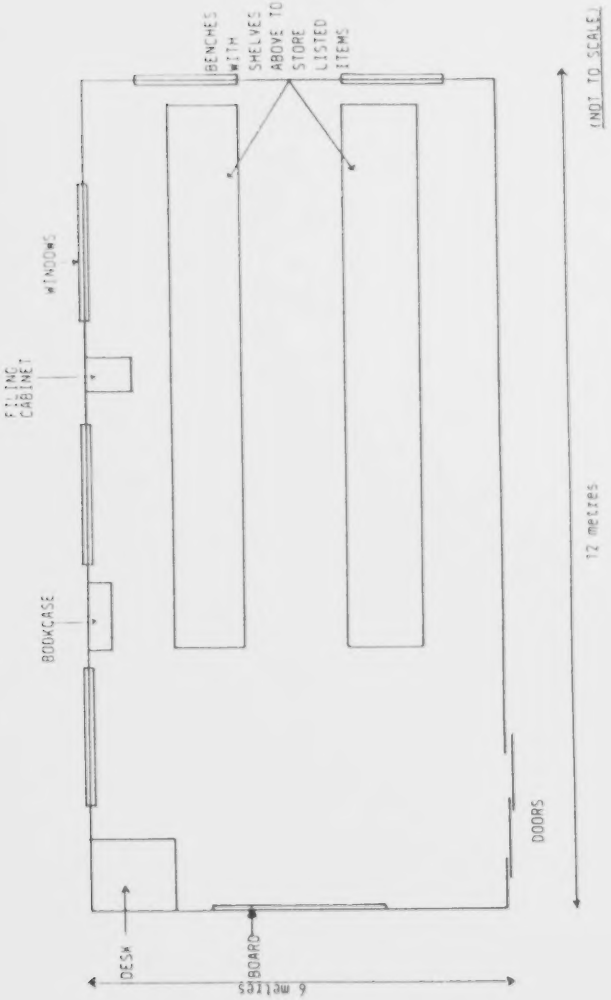
## Welding Workshop Layout & Equipment

(Lancaster & Morecambe College of Further Education)

| Item no. | Qty. | Item | Specifications |
|---|---|---|---|
| A | 12 | Electric arc booth | Partially enclosed by 1.3m high walls to prevent accidental 'flash' to casual observers, but permitting constant access for tutor supervision. Each booth contains access to welding transformer, tools on shadowboard, mask, striking pad and fume extraction ducting overhead. |
| B | 1 | Oxy-Acetylene console | Each console contains FOUR work stations with adjustable seats. Each station contains individually controlled outlets for oxygen and acetylene gases, with pilot light and automatic shut off valves which shut off the flow of gas when the torch is replaced in its holder. |
| C | 4 | Storage racks | Used for the convenient storage of welding rods, tongs, aprons, etc. |
| D | 2 | Storage cupboards | |
| E | 1 | Belt finisher | |
| F | 1 | Oxy-Acetylene cutting bench | |
| G | 2 | Emergency exit | |
| H | 1 | Portable engineers vice | |
| J | 1 | Power hacksaw | |
| K | 1 | Horizontal grinder | |
| L | 1 | Blacksmith's anvil | |
| M | 1 | Double off-hand grinder | |
| N | 1 | Wash hand basin | |
| P | 1 | Outdoor enclosed storage cage for oxygen and acetylene cylinders | Overhead piping to consoles and cutting bench. |

## Electronics Laboratory Layout

(North London Polytechnic)



## Electronics Laboratory Equipment List

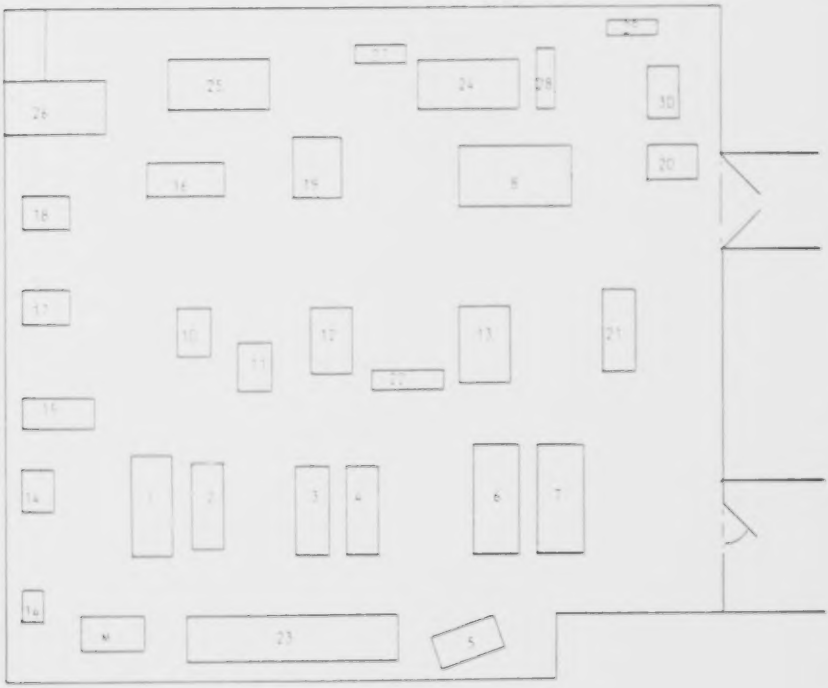
(North London Polytechnic)

| Item no. | Qty. | Item | Specification | Unit Cost £ | Cost (1983) £ |
|---|---|---|---|---|---|
| 1 | 10 | Oscilloscope | 25 MHz | 300 | 3000 |
| 2 | 2 | Oscilloscope probes | dc - 100 MHz | 20 | 40 |
| 3 | 1 | Oscilloscope | 100 MHz | 1400 | 1400 |
| 4 | 10 | Power supplier | 30V dc variable 3A | 150 | 1500 |
| 5 | 7 | Oscillator | 3 Hz - 300 kHz | 120 | 840 |
| 6 | 3 | Pulse generators | | 450 | 1350 |
| 7 | 10 | Digital patch power supply | with internal | 100 | 1000 |
| 8 | 5 | Measuring instruments | Analogue multimeter | 130 | 650 |
| 9 | 5 | ditto | Digital do. | 200 | 1000 |
| 10 | 1 | Counter/ timer | 200 MHz | 200 | 200 |
| 11 | | Components | Integrated circuits, resistors etc. | | 200 |
| 12 | | Furniture | | | 500 |
| 13 | | Misc | Soldering irons, tools, cables, etc. | | 1000 |

Note: Power: each item consumes less than 0,5kW. Many are battery operated.

Students' Training Workshop Layout

(Mechanical Engineering Department, Imperial College)



## Students' Training Workshop - Equipment

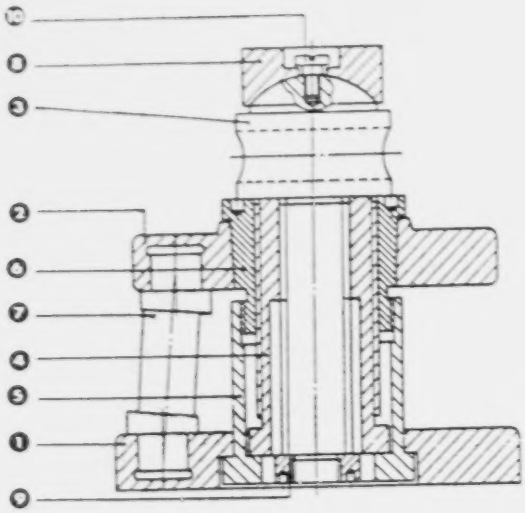
(Mechanical Engineering Department, Imperial College)

| Item no. | Item | Power (kw) | Specifications |
|---|---|---|---|
| 1 | Centre Lathe | 3 | Swing: 190 Colchester<br>Cent.Dist: 750 Triumph 2000 |
| 2 | Centre Lathe | 3.5 | Swing: 165 Colchester<br>Cent.Dist: 750 Bantam 2000 |
| 3 | Centre Lathe | 2.2 | Swing: 152 Colchester<br>Cent.Dist: 610 Student |
| 4 | Centre Lathe | 2.2 | Swing: 152 Colchester<br>Cent.Dist: 610 Student |
| 5 | Centre Lathe | 2.2 | Swing: 325 Colchester<br>Cent.Dist: 510 Chipmaster |
| 6 | Centre Lathe | 1.5 | Swing: 160 Unibrenk<br>Cent.Dist: 700 |
| 7 | Centre Lathe | 2.2 | Swing: 130 Lang<br>Cent.Dist: 750 |
| 8 | Centre Lathe | 2.2 | Swing: 260 Lang<br>Cent.Dist: 750 |
| 9 | Vert. Milling Machine | 1.5 | Table: 250 x 1000 Bridgeport |
| 10 | Vert. Milling Machine | 1.5 | Table: 250 x 1000 Bridgeport<br>(Digital read out) |
| 11 | Horizontal Milling m/c | 1.7 | Table: 200 x 750 Adcock & Shipley |
| 12 | Universal Horizontal Milling machine | 3.7 | Table: 300 x 1300 Parkson |
| 13 | Vert. Milling m/c | 3.7 | Table: 350 x 1500 Archdale |
| 14 | Off-hand Tool Grinder | .6 | Wheel Ø 200 x 300 Wolf |
| 15 | Plough Grinder | 2.2 | Table: 130 x 250 Melcowlen |
| 16 | Surface Grinder | .75 | Table: 350 x 150 Churchill |
| 17 | Radial Drill | 1.5 | Table: 550 x 1000 Archdale |
| 18 | Pillar Drill | .5 | Table: 250 x 300 Herbert |
| 19 | Bandsaw | .75 | Table: 550 x 550 Midsaw |
| 20 | Hacksaw (power) | 1.500 | Stroke: 200 Wicksteed |
| 21 | Shaping m/c | 1.5 | Stroke: 500 Edgewick |
| 22-26 | Benches | | |
| 27 | Rolling Machine | | 600 Edwards |
| 28 | Guillotine | | 900 |
| 29 | Bending machine | | 600 Besco |
| 30 | Fly press | | |
| M | Marking out table | | 620 x 1200 |

## Specifications of products to be made by students in Vocational Education

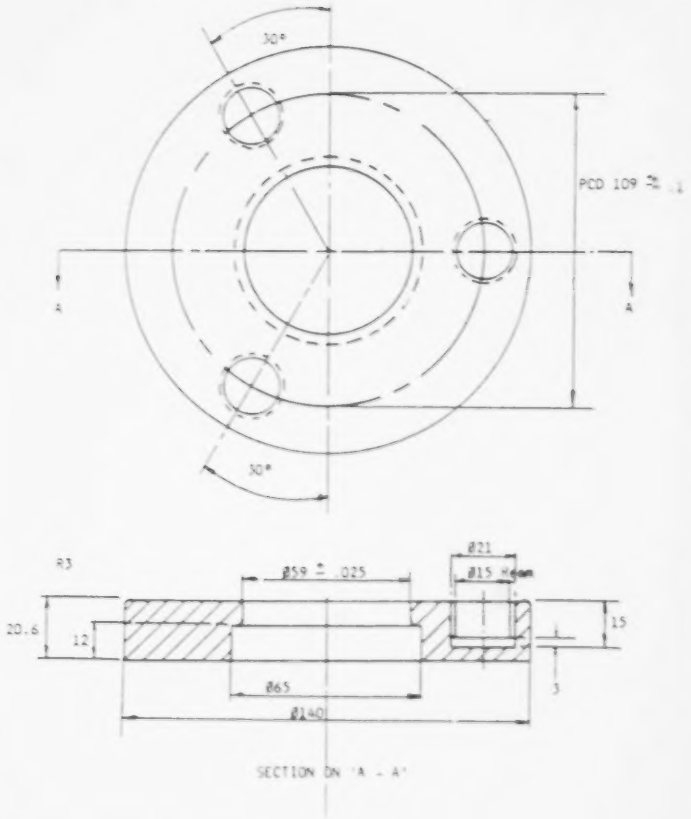
Specifications of products to be made by students as part of their vocational education in the Engineering Department at Lancaster and Morecambe College of Further Education:

- Screw Jack
- Bottle Jack
- Assembly of Comparator Stand
- General Arrangement of the M.E 1½ Universal Swivelling Bench-Vice




| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| 10 | Screw | 1 | MS | Ø12 x 34 |
| 9 | Ring nut | 1 | MS | Ø31 x 31 |
| 8 | Cap | 1 | MS | Ø50 x 40 |
| 7 | Pillar | 3 | MS | Ø31 x 28 |
| 6 | Guide bush | 1 | MS | Ø68 x 59 |
| 5 | Distance Piece | 1 | MS | Ø68 x 78 |
| 4 | Threaded bush | 1 | Brass | Ø58 x 150 |
| 3 | Ram | 1 | MS | Ø56 x 150 |
| 2 | Plate | 1 | MS | Ø131 x 31 |
| 1 | Base | 1 | MS | Ø150 x 25 |
| SYM | DESCRIPTION | QTY | MATERIAL | SIZE REMARKS |

| | DATE | NAME | SCALE | | AC/H002/11 | |
|---|---|---|---|---|---|---|
| DWN by | 15/10/82 | RA | NTS | SCREW JACK | REF No. | SHT No. |
| CHK by | | | | | | |

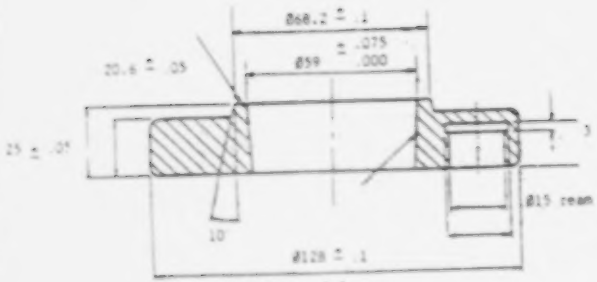


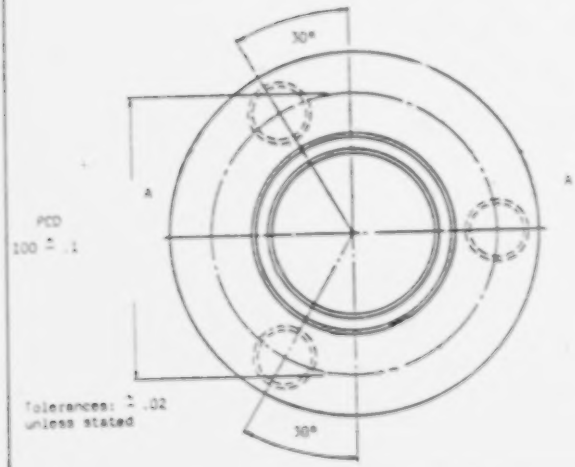

SECTION ON 'A - A'

Tolerances: ± 0.2 unless stated

1

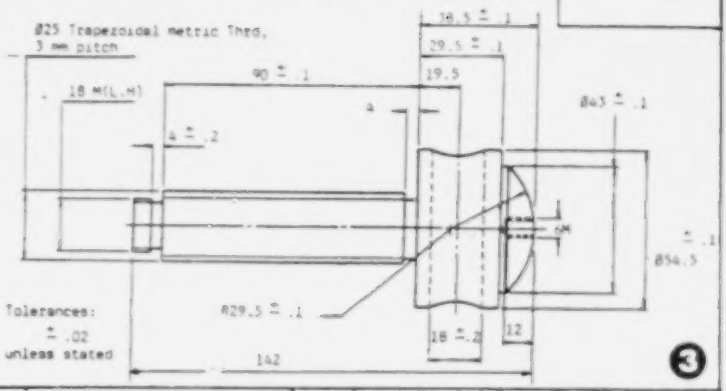
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | Base | | | 1 | MS | | |
| | DATE | NAME | SCALE | Screw Jack: Base | | AC/M002/11 - 1 | |
| DWN by | 18/10/82 | RR | | | | REF. No. | SHT. No. 1 |
| CHK by | | RR | | | | | |



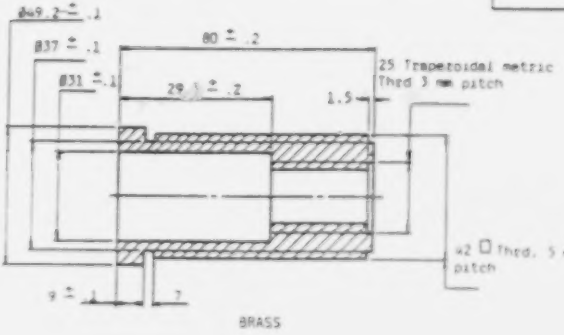




2

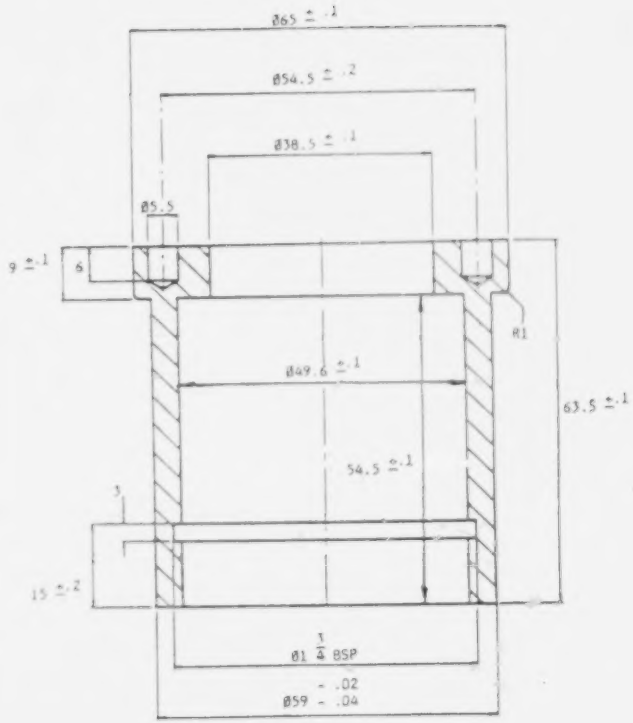
| | | | | | |
|---|---|---|---|---|---|
| 2 | Plate | | 1 | MS | |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE REMARKS |
| | DATE | NAME | SCALE NTS | Screw Jack: Plate | AC/HDD2/11 - 2 |
| DWN By | 18/10/82 | GR | | | REF No. SHT No. 2 |
| CHK By | | RR | | | |




| 3 | Ram | | | 1 | MS | | |
|---|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Crew Jack: RAM | | AC/MOD2/11 - 3 | |
| DWN by | 18/10/82 | RR | | | | REF. No. | SHT. No. 3 |
| CHK by | " | RR | | | | | |

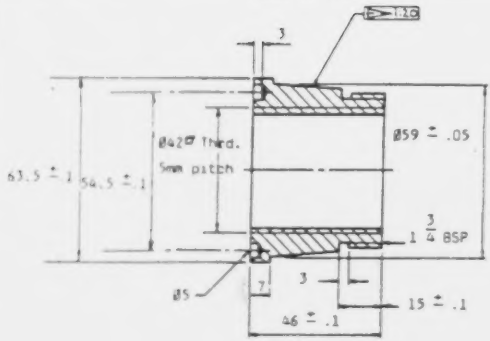



| 4 | Threaded Bush | | | 1 | Brass | | |
|---|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Screw Jack: Threaded Bush | | AC/MOD2/11 - 4 | |
| DWN by | 18/10/82 | RR | | | | REF. No. | SHT. No. 4 |
| CHK by | " | RR | | | | | |



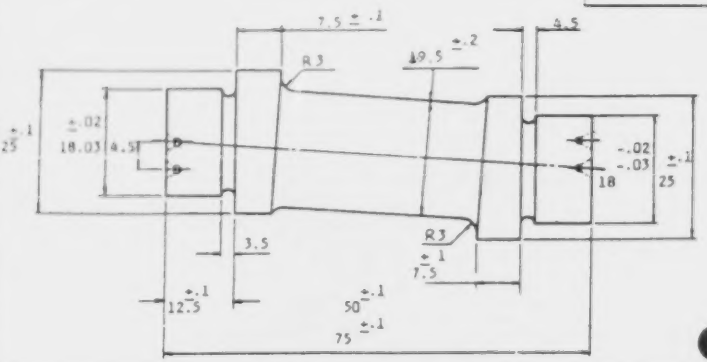

5

| | | | | | |
|---|---|---|---|---|---|
| 5 | Distance Piece | | 1 | MS | |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE REMARKS |
| | DATE | NAME | SCALE | Screw Jack: Distance Piece | AC/H002/11 - 5 |
| DWN by | 25/10/82 | RA | | | REF No. SHT No. 5 |
| CHK by | " | " | | | |



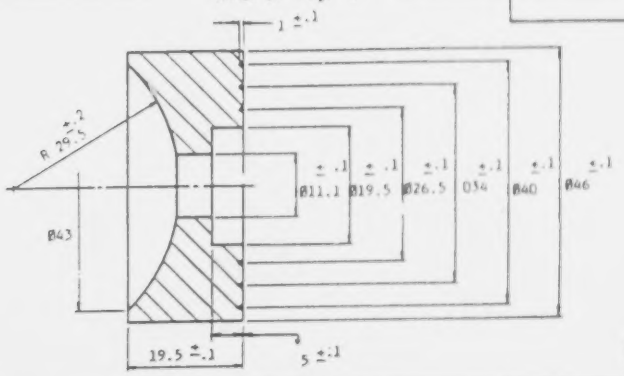

6

| 6 | Guide Bush | | | 1 | MS | | |
|---|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Screw Jack: Guide Bush | | AC/MOD2/11 - 6 | |
| DWN by | 15/10/82 | RR | | | | REF. No. | SHT. No. 6 |
| CHK by | " | HA | | | | | |

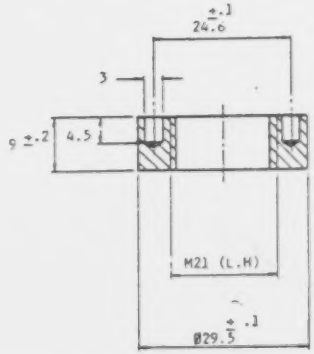



7

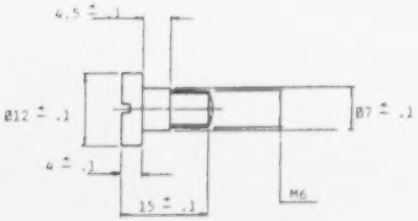
| 7 | Pillar | | | 3 | MS | | |
|---|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Screw Jack: PILLAR | | AC/MOD2/11 - 7 | |
| DWN by | 25/10/82 | RA | | | | REF. No. | SHT. No. 7 |
| CHK by | " | RA | | | | | |




| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | Cap | | | 1 | MS | | |
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Screw Jack: CAP | | | AC/MOD2/11 - 8 |
| DWN by | 25/10/81 | MA | | | | | REF. No. / SMT. No. 8 |
| CHK by | " | MA | | | | | |

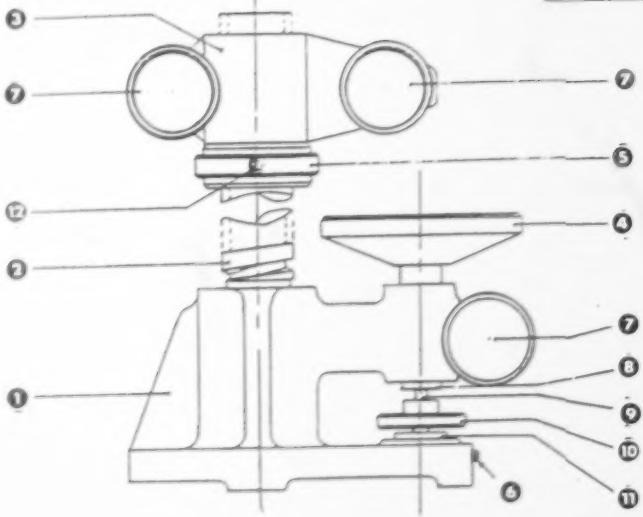



| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | Ring Nut | | | 1 | MS | | |
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Screw Jack: RING NUT | | | AC/MOD2/11/9 |
| DWN by | 25/10/81 | MA | | | | | REF. No. / SMT. No. 9 |
| CHK by | | | | | | | |



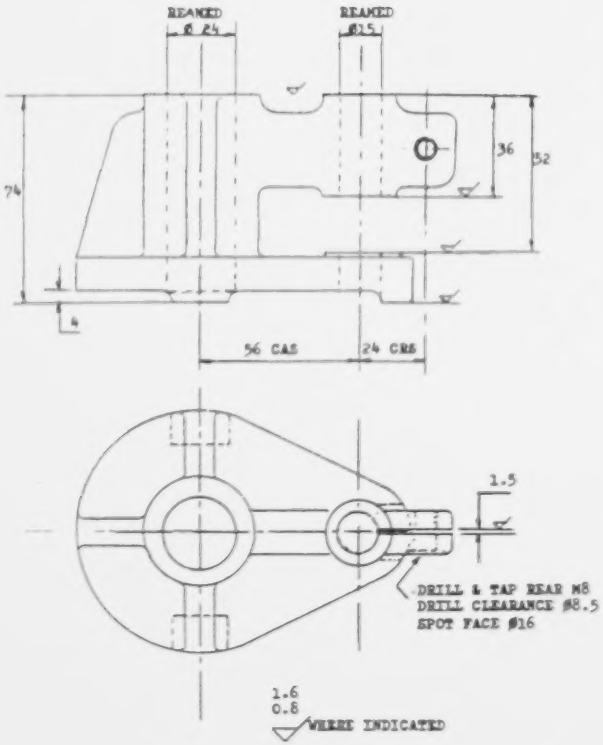

10

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | Screw | | 1 | MS | | |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Screw Jack: Screw | | AC/MOD2/11/10 |
| DWN by | 25/10/82 | MA | | | | REF. No. / SHT. No. 10 |
| CHK by | " | MA | | | | |



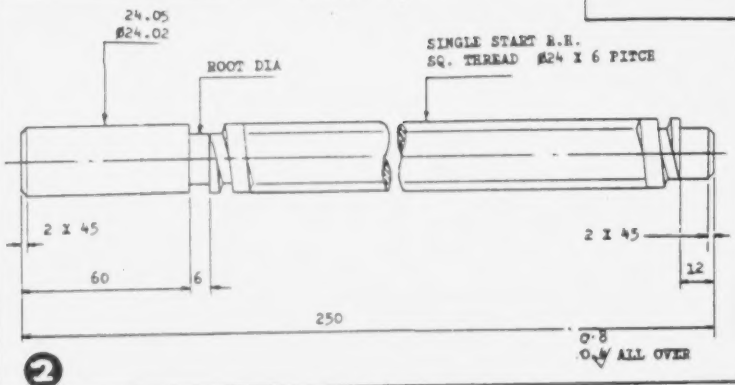

| | | | | |
|---|---|---|---|---|
| 13 | Taper pin | 1 | Stock | |
| 12 | Screw | 1 | BDMS | |
| 11 | Bush | 1 | BDMS | |
| 10 | Ring | 1 | BDMS | |
| 9 | Screw | 1 | BDMS | |
| 8 | Piller | 1 | BDMS | |
| 7 | Screw | 3 | BDMS | |
| 6 | Screw | 1 | BDMS | Optional |
| 5 | Locking Ring | 1 | BDMS | |
| 4 | Table | 1 | BDMS | |
| 3 | Clip | 1 | Malleable C.I. | |
| 2 | Piller | 1 | BDMS | |
| 1 | Base | 1 | C.I. | |
| SYM | DESCRIPTION | QTY | MATERIAL | SIZE REMARKS |

| | DATE | NAME | SCALE | | | |
|---|---|---|---|---|---|---|
| DWN By | | | | Comparator Stand | REF No. | SHT No |
| CHK By | | | | | | |

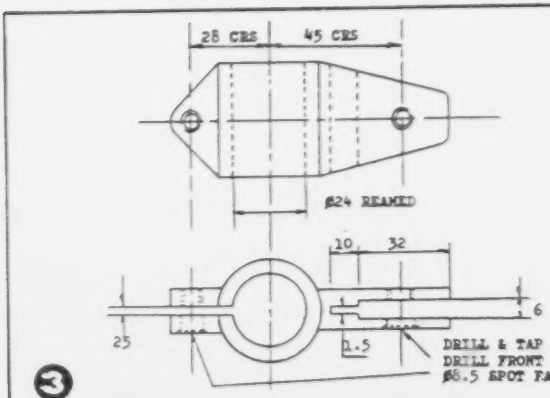



1

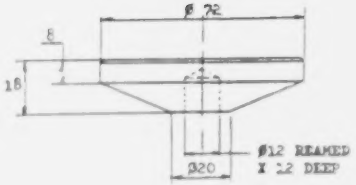
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | Base | | | 1 | Cast iron | | |
| | DATE | NAME | SCALE | COMPARATOR STAND BASE | | AC/B/1 | |
| DWN By | 2/7/79 | IMC | | | | REF. No. | SHT. No. 2 |
| CHK By | " | " | | | | | |




| 2 | Piller | | 1 | Mild steel | | |
|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator stand | AC/B/1 | |
| DWN by | 2/7/79 | C.H. | | | REF. No. | SHT. No. 2 |
| CHK by | " | " | | | | |

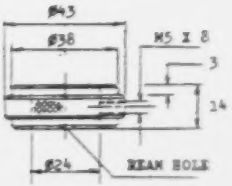



| 3 | Clip | | 1 | Hal.C.1. | | |
|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator stand Clip | AC/B/1 | |
| DWN by | 2/7/79 | C.H. | | | REF. No. | SHT. No. 3 |
| CHK by | " | " | | | | |



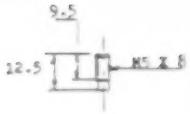

4

| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | Table | | 1 | BDHS | | |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator Stand Table | AC/B/1 | |
| DWN By | 2/7/79 | C.H. | | | REF. No. | SMT. No. 4 |
| CHK By | " | " | | | | |



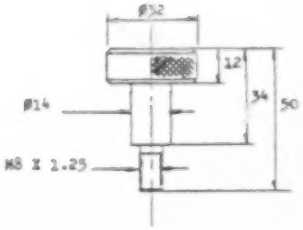

5

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | Locking Ring | | 1 | BDHS | | |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator stand Locking Ring | AC/B/1 | |
| DWN By | 2/7/79 | I.M.C. | | | REF. No. | SMT. No. 5 |
| CHK By | " | " | | | | |



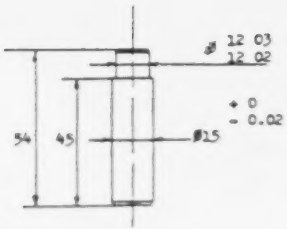

6

| 6 | Screw | | | 1 | B D M S | | Optional |
|---|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator Stand | | AC/B/1 | |
| DWN by | 2/7/79 | I.M.C | | Screw | | REF. No. | SMT. No. 6 |
| CHK by | " | " | | | | | |



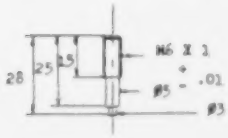

7

| 7 | Screw | | | 1 | BDMS | | - |
|---|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator Stand | | AC/B/1 | |
| DWN by | 2/7/79 | I.M.C. | | Screw | | REF. No. | SMT. No. 7 |
| CHK by | " | " | | | | | |



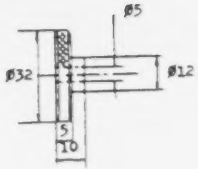

8

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | Pillar | | 1 | BDMS | | |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator Stand | AC/B/1 | |
| DWN by | 7/7/79 | C.H. | | Pillar | REF. No. | SHT. No. 8 |
| CHK by | " | " | | | | |



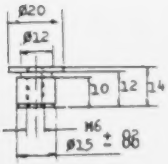

9

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | Screw | | 1 | BDMS | | . |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator Stand | AC/B/1 | |
| DWN by | 2/7/79 | I.M.C. | | Screw | REF. No. | SHT. No. 9 |
| CHK by | " | " | | | | |



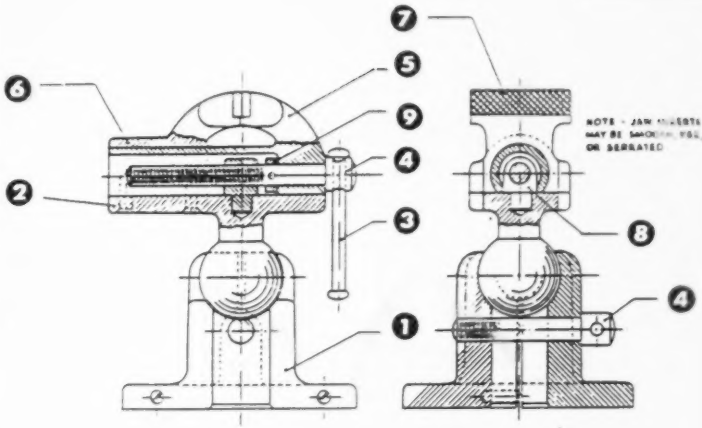

10

| 10 | Ring | | | 1 | BDMS | | |
|---|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator Stand | | AC/B/1 | |
| DWN by | 2/7/79 | I.M.C. | | | | REF. No. | SHT. No. |
| CHK by | " | " | | Ring | | | 10 |



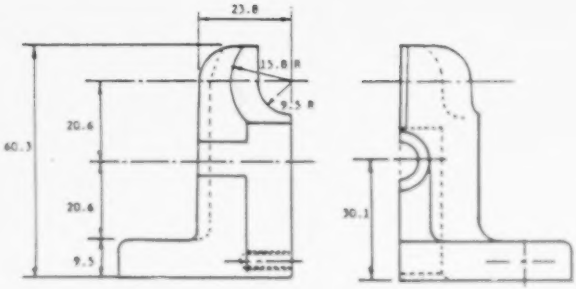

11

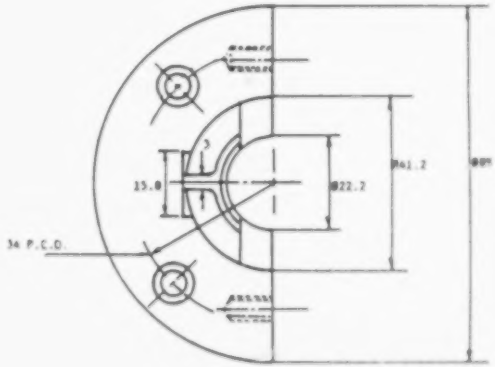
| 11 | Bush | | | 1 | BDMS | | |
|---|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Comparator Stand | | AC/B/1 | |
| DWN by | 2/7/79 | I.M.C. | | | | REF. No. | SHT. No. |
| CHK by | " | " | | Bush | | | 11 |




| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| 9 | Collar | 1 | M.S. | | |
| 8 | Loose nut | 1 | Bronze | | |
| 7 | Jaw inserts | 2 | TTS | | |
| 6 | Stationary jaw | 1 | C.1 | | |
| 5 | Sliding jaw & ram | 1 | C.1 | | |
| 4 | Screw for jaw & swivel clamp | 1 each | M.S. | | |
| 3 | Hand lever | 2 | Silver steel | | |
| 2 | Soleplate and Ball | 1 | C.1 | | |
| 1 | Base | 2 | C.1 or Al. Alloy | | |
| SYM | DESCRIPTION | QTY | MATERIAL | SIZE | REMARKS |

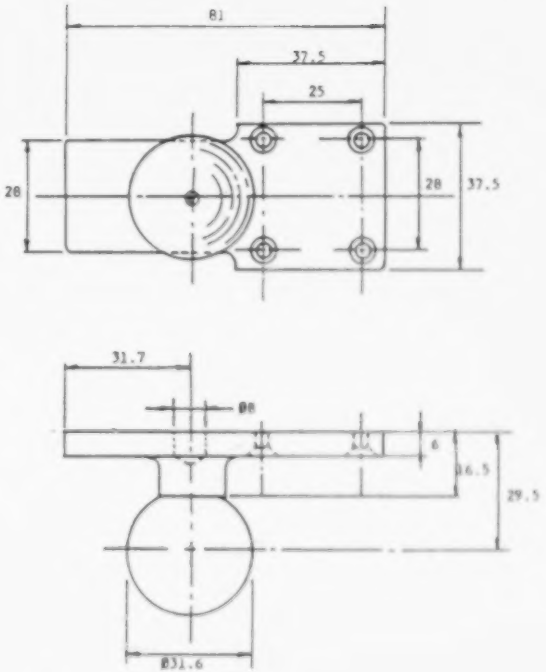
| | DATE | NAME | SCALE | | |
|---|---|---|---|---|---|
| DWN by | 21/2/82 | F.W.W. | | Universal swivelling Bench vice | MS/20/1 |
| CHK by | | | | | REF. No. / SHT. No. 1 |



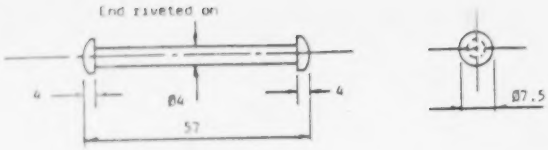

1

| 1 | Base | | | 2 | Cast Iron | Casting |
|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | | QTY | MATERIAL | SIZE REMARKS |
| | DATE | NAME | SCALE | Universal Swivelling Bench vice Base | | H5/20/1 |
| DWN by | 21/2/82 | F.W.W. | | | | REF No. SHT No |
| CHK by | " | " | | | | |




2

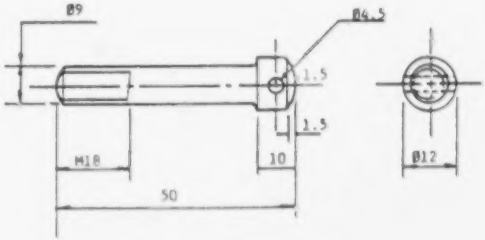
| | | | | | |
|---|---|---|---|---|---|
| 2 | Soleplate and Ball | | 1 | C.1 | Casting |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE REMARKS |
| | DATE | NAME | SCALE 1 : 1 | Universal Swivelling Bench vice Soleplate and Ball | MS 20/2 |
| DWN by | 21/2/82 | F.W.W. | | | REF. No. / SHT. No. 2 |
| CHK by | " | " | | | |




3

| | | | | | |
|---|---|---|---|---|---|
| 3 | Hand lever | 2 | Silver Steel | As shown | |
| SYM | DESCRIPTION | QTY | MATERIAL | SIZE | REMARKS |

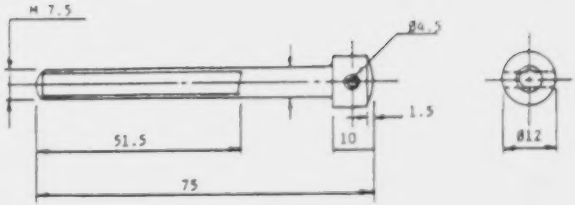
| | DATE | NAME | SCALE | | |
|---|---|---|---|---|---|
| DWN by | 21/2/82 | F.W.W | | Universal Swivelling Bench Vice Hand Lever | MS 20/3 |
| CHK by | | | | | REF. No. / SHT. No. 3 |




4

| | | | | | |
|---|---|---|---|---|---|
| 4 | Screw | 1 | Mild Steel | | As Shown |
| SYM | DESCRIPTION | QTY | MATERIAL | SIZE | REMARKS |

| | DATE | NAME | SCALE | | |
|---|---|---|---|---|---|
| DWN by | | | | Universal Swivelling Bench vice Screw | MS/20/4 |
| CHK by | | | | | REF. No. / SHT. No. 4 |




4

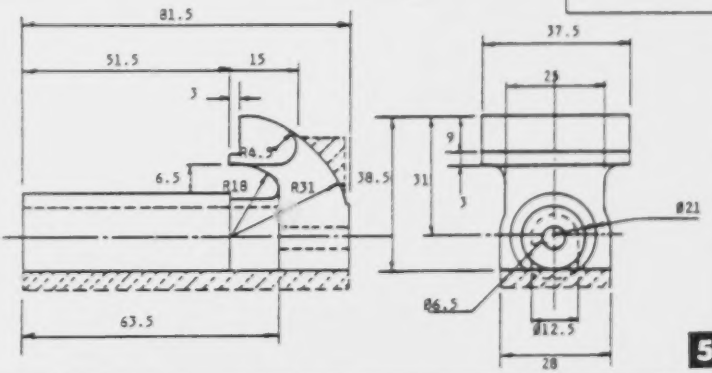
| 4 | Screw | 1 | Mild Steel | | As shown |
|---|---|---|---|---|---|
| SYM | DESCRIPTION | QTY | MATERIAL | SIZE | REMARKS |

| | DATE | NAME | SCALE |
|---|---|---|---|
| DWN By | 21/2/82 | F.W.W. | |
| CHK by | | | |

Universal Swivelling Bench vice Screw

MS/20/4

REF. No. | SHT. No. 4




5

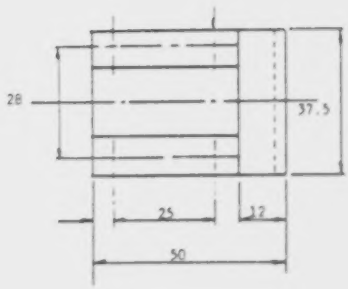
| 5 | Sliding Jaw & Ram | 1 | Cast Iron | | Casting |
|---|---|---|---|---|---|
| SYM | DESCRIPTION | QTY | MATERIAL | SIZE | REMARKS |

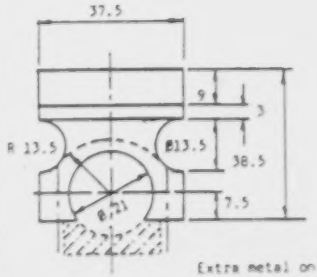
| | DATE | NAME | SCALE |
|---|---|---|---|
| DWN By | 21/2/82 | F.W.W. | |
| CHK by | " | " | |

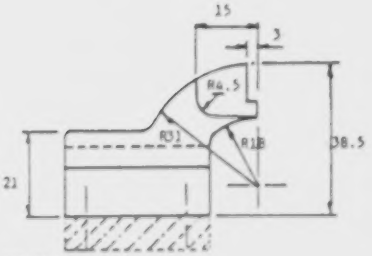
Universal Swivelling Bench Vice Sliding Jaw & Ram

MS/20/5

REF. No. | SHT. No. 5



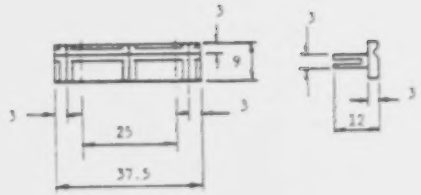




Extra metal on casting
to facilitate boring

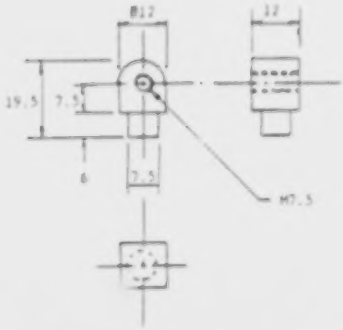
6

| | | | | | |
|---|---|---|---|---|---|
| 6 | Stationary Jaw | | 1 | C.1 | As shown |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE REMARKS |
| | DATE | NAME | SCALE 1.1 | Universal swivelling Bench vice Stationary Jaw | MS 20/6 |
| DWN By | 21/2/82 | F.W.K | | | REF No. / Sml No. 6 |
| CHK By | " | " | | | |



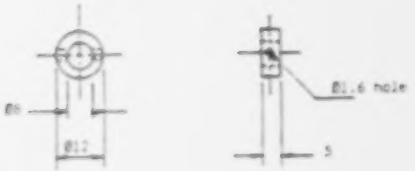

7

| 7 | Jaw Inserts | | 2 | TTS | As shown | |
|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Universal Swivelling Bench vice | MS20/7 | |
| DWN By | 21/2/82 | F.W.B. | 1 : 1 | Jaw Inserts | REF. No. | SHT. No. 7 |
| CHK By | - | - | | | | |




8

| 8 | Loose Nut | | 1 | Bronze | | As shown |
|---|---|---|---|---|---|---|
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Universal Swivelling Bench vice Loose Nut | MS/20/8 | |
| DWN By | 21/2/82 | F.W.B. | | | REF. No. | SHT. No. 8 |
| CHK By | - | - | | | | |




9

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | Collar | | 1 | Mild Steel | | As shown |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | Universal Swivelling Bench Vice Collar | | MS/20/9 |
| Dwn By | 21/2/82 | F.W.K | | | | REF No. SHT. No. 9 |
| Chkd By | " | " | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| SYM | DESCRIPTION | | QTY | MATERIAL | SIZE | REMARKS |
| | DATE | NAME | SCALE | | | |
| Dwn By | | | | | | REF No. SHT. No. |
| Chkd By | | | | | | |

## Examples of Curriculum outlines

Examples of curriculum outlines at two further education colleges (i) for students studying part-time for a TEC Certificate:

| | | |
|---|---|---|
| - | South Dorset College | TEC Certificate in Mechanical and Production Engineering (see Notes (ii), (iii), (iv)) |
| - | Dewsbury and Batley Technical and Art College | TEC Certificate in Motor Vehicle Engineering (see Notes (v) and (vi)) |

Notes:

(i) The curriculum outline has been adjusted to accommodate the standard U.K. college year divided into three terms (the two semester per year system is not used in the U.K.).

(ii) Each period is assumed to be one hour long.

(iii) It has been assumed that draughting is done in the laboratory - i.e. the drawing shop.

(iv) * asterisks indicate optional studies. Students choose which options to take. A typical selection has been ticked ( ✓ ).

(v) The total hours exceed 15 x 60 to allow time in college for extra tutorials and re-assessment.

(vi) Workshops and laboratory time has been averaged. In practice there would be a workshop or laboratory session every three or four weeks.

CURRICULUM OUTLINE

| School: S. Dorset Tech. College | | Level: TEC Certificate | | | | | | | | | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field: Engineering | | Course: Mech. & Production | | | | | | | | | | |
| | | Periods per week | | | | | | | | | | |
| | Subject | 1st year | | | 2nd year | | | 3rd year | | | | |
| | | Class | W/S | Lab | Class | W/S | Lab | Class | W/S | Lab | | |
| GENERAL | Mathematics I | 2 | | | | | | | | | 2 | |
| | Mathematics II | | | | 1 | | | | | | 1 | |
| | Analytical maths (0.5) or mensurations (0.5) | | | | 1 | | | | | | 1 | |
| | G & CS A | 2 | | | | | | | | | 2 | |
| | G & CS B | | | | 2 | | | | | | 2 | |
| * | Mathematics III | | | | | | | 2 | | | 2 | |
| * | Statistics (0.5) III | | | | | | | 1 | | | 1 | |
| ✓* | Use of computers II | | | | | | | 1 | | | 1 | |
| ✓* | Computer assgmts. II | | | | | | | | | 1 | 1 | |
| SCIENCE | Physical Science I | 1.5 | | 0.5 | | | | | | | 2 | |
| | Engineering Sci. II | | | | 1.5 | | 0.5 | | | | 2 | |
| | Engineering Sci. III | | | | | | | 1.5 | | 0.5 | 2 | |
| * | Mechanical Sci. III | | | | | | | 1.5 | | 0.5 | 2 | |
| GENERAL & SPECIAL TECHNICAL | | | | | | | | | | | | |
| | Wksho.Processes/Material | 1 | 1 | | | | | | | | 2 | |
| | Engineering Drawing I | | | 2 | | | | | | | 2 | |
| ✓* | Engineering Drawing II | | | | | | 2 | | | | 2 | |
| | Manuf. Technol. II | | | | 1 | 1 | | | | | 2 | |
| | Materials Technology | | | | | | | 1 | | 1 | 2 | |
| ✓* | Manuf. Technol. III | | | | | | | 1 | 1 | | 2 | |
| ✓* | Engineering Design III | | | | | | | | | 2 | 2 | |
| Total class periods | | 6.5 | | | 6.5 | | | | | | | |
| Total workshop periods | | | 1.0 | | | 1.0 | | | 1.0 | | | |
| Total lab. periods | | | | 2.5 | | | 2.5 | | | * | | |
| Total practice periods | | | 3.5 | | | 3.5 | | | * | | | |
| Grand total | | 10 | | | 10 | | | 10 | | | | |

* Dependent upon options studied.

CURRICULUM OUTLINE

| School: Dewsbury & Batley Technical & Art College | | Level: Certificate | | | | | | | | | | Age: 16-19 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field: Motor Vehicle Engng. | | Course: TEC | | | | | | | | | | Yr: 1983 | |
| | | Periods per week (Hours) x 35 weeks | | | | | | | | | | | |
| | Subject | 1st yr. | | | 2nd yr. | | | 3rd yr. | | | | Total | % |
| GENERAL | Gen. & Communications I | 2 | | | | | | | | | | 2 | |
| | " " II | | | | 1 | | | 1 | | | | 2 | |
| (*) | Motor Vehicle Drawing I | | | | 1 | | | | | | | 1 | |
| (*) | " " " II | | | | | | | 1 | | | | 1 | |
| SCIENCE | Motor Vehicle Sci. I | 1½ | | ½ | | | | | | | | 2 | |
| | " " " II | | | | 1½ | | ½ | | | | | 2 | |
| | " " " III | | | | | | | 1½ | | ½ | | 2 | |
| | Mathematics I | 2 | | | | | | | | | | 2 | |
| (*) | " II | | | | 1 | | | | | | | 1 | |
| GENERAL & SPECIAL TECHNICAL | (*) W/S processes/materials | 1 | 1 | | | | | | | | | 1 | |
| | Engine Technology I | 1 | 1 | | | | | | | | | 2 | |
| | Vehicle Technology I | 1 | 1 | | | | | | | | | 2 | |
| | Engine Technology II | | | | 1 | 1 | | | | | | 2 | |
| | Vehicle Technology III | | | | 1 | 1 | | | | | | 2 | |
| | Petrol Engine Technology | | | | | | | 1 | 1 | | | 2 | |
| | Diesel Engine Technology | | | | | | | 1 | 1 | | | 2 | |
| | Vehicle Transmission | | | | | | | 1 | 1 | | | 2 | |
| Total class periods | | 7½ | | | 8 | | | 8½ | | | | | |
| Total workshop periods | | | 1 | | | 1 | | | 2 | | | | |
| Total lab. periods | | | | 1 | | | 1 | | | 1 | | | |
| Total practice periods | | | 1½ | | | 1 | | | 1½ | | | | |
| Grand total | | 11 | | | 9 | | | 10 | | | | | |